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USSR Report

HUMAN RESOURCES

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LABOR

GOSSNAB LEGAL EXPERT ANSWERS QUESTIONS ON LABOR NORMS

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 8, Aug 84
pp 77-80

[Interview with Ye. P. Levin, senior legal consultant, Legal Department, Gossnab USSR: "Norms for Work Time" under the rubric "Our Consultation"]

[Text] Many of the magazine's readers are interested in the rate-setting system for work time, and the associated regulations from Soviet law. Answering their questions is Senior Legal Consultant, Legal Department, Gossnab USSR, Ye. P. Levin.

In accordance with Article 21 of the Constitution of the USSR, the legal regulation of work time is designed to ensure that working conditions and protection of labor are at a high level. Additionally, the regulations ensure the complete, productive and economic use of work time. In fulfilling this function, the legislation on work time supports increasing production effectiveness, and is an important guarantee for the realization of the citizens' right to leisure [Article 41, Constitution of the USSR].

Existing legislation specifies normal and reduced lengths of work time. The norm established by law cannot be changed by administrative agreement of an enterprise, institution, or organization with a trade union committee or with workers and employees, if not otherwise specified by law.

Question: What is the normal length of work time?

Answer: Forty-one hours per week, with either five or six work days. This standard extends to all workers and employees, regardless of whether they are employed as full-time, temporary or seasonal workers; at state enterprises, at institutions, or at social and cooperative organizations.

Question: Who has the right to a reduced work week?

Answer: Young people ages 15-16 work 24 hours a week; from 16-18 years old, they work 36 hours. Workers and employees who work under dangerous conditions must not work more than 36 hours a week.

A list of manufacturing processes, shops, professions and positions with dangerous working conditions—work at which gives one the right to additional leave and a shortened work day—was approved by a decree of Goskomtrud USSR [State Committee on Labor and Social Problems] and the AUCCTU, of 25 October 1974. Procedures for its application are regulated by the Instruction approved by Goskomtrud USSR and the AUCCTU of 21 November 1975.

In accordance with Point 4 of this Instruction, the right to a reduced work day is granted to workers, engineering and technical workers and employees, whose professions and positions are stipulated by production processes and shops in accordance with the appropriate sections of the List, regardless of which branch of the national economy these production processes and shops pertain to.

Additionally, legislation stipulates a shortened work day for teachers, physicians and certain other categories of workers.

Question: What procedure establishes the length of the work day?

Answer: The length of an ordinary work day (or shift) in a five-day work week is determined by the rules for internal labor procedures or by the shift schedule. They are approved by the administration upon coordination with the trade union committee, based on the established length of the work week.

For workers at the central organizations of ministries, departments and other central institutions of the USSR and the union republics, who have been placed on a five-day work week, the following length is established, as a rule, for ordinary work days: on Monday, Tuesday, Wednesday and Thursday, the work day is eight hours 15 minutes long; on Friday it is eight hours long. Saturday and Sunday are free.

For persons of 15 to 16 years of age, the work day must not exceed five hours, and from 16 to 18 years old, it must not exceed seven hours.

At those enterprises where the nature of the production and working conditions make it inexpedient to introduce the five-day week, a six-day work week is established. In this case, the length of the work day cannot exceed seven hours for those workers and employees who are on a 41-hour week norm; six hours for those on a 36-hour week; and four hours for those on a 24-hour work week.

Question: What is the procedure for establishing the beginning and ending of a work day?

Answer: It is determined according to the rules of internal labor procedure; for shift workers, according to the shift schedule, which has been approved by the administration in cooperation with the trade union committee.

In order to improve city transportation services to the workers, the start of work (or shift) at enterprises is established in accordance with decisions of the state authorities. Thus, in accordance with the decree of the USSR Council of Ministers of 19 December 1967 (SP [Soviet Law], USSR, 1968, No 1, Article 1) the time for start of work at ministries, departments and other central establishments of the USSR is set at 9:00 AM, and in the central institutions of the RSFSR, at 9:30 AM.

The time for start and end of work, and also the length of the lunch break for workers in the organizations of ministries, departments and other central establishments of union republics are determined by the union republic councils of ministers.

Question: How is work regulated just prior to holidays and days off?

Answer: On the eve of holidays the work day is reduced by one hour, both for a five-day and for a six-day work week. However, this does not extend to workers and employees for whom reduced work days have been established in accordance with Article 22 of the Basic Labor Law.

In cases where the holiday comes just prior to a day off, the length of the work day (or shift) is not reduced.

For the workers for whom a six-hour or shorter work day has been established by law, and likewise for a 36-hour or shorter work week, the length of the work day prior to a day off is not changed.

With a five-day week, the work time norm is divided up by days of the week according to a schedule or procedure.

If production procedures preclude reduction of the work day (or shift) on the eve of holidays or days off, the workers and employees must be granted additional leave time equal to the additional hours worked (Point 81, Regulation on Enterprises--Soviet Law, USSR, 1965, No 19-20, Article 155).

Question: What are the special features of night work?

Answer: The length of the work (shift) at night is reduced by one hour as opposed to the norm established for day work. Three exceptions are stipulated for this rule (Article 25, Basic Labor Law): accordingly, the length of the night shift is made equal to the day shift for workers and employees for whom reduced work time is already stipulated; in those cases when production conditions require it; and for shift work with a six-day work week with one day off.

Night work is remunerated at an increased rate, established by legislation of the Union of Soviet Socialist Republics. For example, for industrial workers, an additional payment has been established in the amount of 20 per cent of the basic hourly wage rate for each hour of work; for textile and bakery workers and certain other enterprises, the additional amount is 50 per cent of the basic hourly rate.

Question: Who is not permitted to work at night?

Answer: Under no circumstances is night work allowed for pregnant women; nor for mothers who are breast-feeding their children; nor for women who have children who are less than one year old (Article 69, Basic Labor Laws).

Pregnant women and mothers who have children under 12 years of age should not be subjected to duty at enterprises after the work day is over; nor at night; nor on days off or holidays.

Workers and employees who are under 18 years old are also not permitted to work nights (Article 78, Basic Labor Laws); other categories of workers, the list of which is determined by law, are also forbidden to work nights.

Question: What is meant by overtime work, and how is it carried out?

Answer: As a rule, overtime work is not permitted. The administration may resort to that only in exceptional cases, stipulated by legislation of the Union of Soviet Socialist Republics. Work which exceeds the length of the established time for work is considered overtime work.

In accordance with Point 6 of the Decree of the Plenum of the USSR Supreme Court of 24 November 1978 (Bulletin of the USSR Supreme Court, 1979, No 1, p 15) work which exceeds the established work time is overtime if it is carried out according to the instructions or with the knowledge of the administration of an enterprise. Work is considered overtime work also when a worker carries it out according to verbal instructions of the administration, and also irregardless of whether the work falls within one's usual responsibilities or whether he is carrying out another assignment.

According to the law, this work may be carried out only with the permission of the trade union committee. Moreover, permission must be received by the administration prior to the beginning of work. Administration requests for permission after the work is carried out (except for emergencies, natural disasters and when a shift worker's replacement does not show up) is considered a gross violation of the law. The administration indicates in a written order how many overtime hours are required, for what purposes they are needed, the reasons which brought about the need for them, what categories of workers are required, and when they must report for such work.

Overtime work cannot exceed four hours per worker and employee in the course of two successive days, and must not exceed 120 hours per year. The administration of an enterprise is obliged to maintain strict accountability for such work for each worker.

Question: Under what circumstances is overtime work permitted?

Answer: Primarily when carrying out work necessary for national defense, and also to avert social or natural disasters; or following an industrial accident, in order to immediately eradicate the consequences. Overtime work is also permitted for carrying out socially-necessary work for furnishing water, gas, heating, lighting, sewage, transportation and communications, when dealing with chance situations which interfere with their proper functioning. Overtime is also permitted when it is necessary to finish work

which because of an unforeseen or accidental lag owing to technical production conditions, could not be completed in the course of the work day, when stopping the work may entail spoilage or loss of state or social property. Such is also the case when carrying out temporary repair and restoration of mechanisms or structures, when their disrepair would bring to a halt the work of a significant number of workers.

The administration is obliged to immediately take measures to continue operations when a shift worker fails to appear for duty, if a break in production is not possible.

However, for utilizing overtime work in cases not stipulated by law or which violate established procedure, the guilty parties are subject to disciplinary, administrative or criminal sanctions.

Question: Are all workers subject to overtime work?

Answer: No, not all. Not subject to overtime work are: pregnant women, women who are breast feeding, women with infants under one year of age, workers and employees under 18 years old, and also people who are working full time and also studying at general-educational schools and vocational-technical educational institutions (on class days).

Nor are persons subject to overtime work who have been exempted by decision of a medical consultation committee (VKK-Vrachebno-konsul'tativnaya kommissiya), or in the absence of a VKK--by decision of a medical facility. Women who have children from one to eight years old are enlisted for such work only with their consent; invalids are permitted to work overtime only under the condition that it is not forbidden for medical reasons.

Question: How is one paid for overtime work?

Answer: Under the hourly wage rate system, overtime work is paid at a rate of time-and-a-half for the first two hours, and at double the regular rate for each hour thereafter. Workers who do not have a standard work day do not have such a right.

Under the piece-work system, overtime work is paid at a rate of 50 per cent of the standard wage rate for hourly wage rate workers of the same skill for the first two hours of overtime work, and at a rate of 100 per cent of that standard wage rate for each hour thereafter.

At enterprises where uniform standard wage rates have been established for piece-work and hourly-wage rate workers, the additional payment is computed on the basis of 37.5 per cent of that wage rate for each of the first two hours of overtime work, and at 75 per cent for the succeeding hours. In cases especially provided for under existing legislation, the additional payment may be made at the rate of 50 per cent of the uniform wage rate.

Compensatory time is not authorized for overtime work. It is also forbidden to add up overtime hours for the purpose of accruing additional days off to correspond to the amount of overtime worked, or to add that time to one's vacation.

Those who are not assigned to work a full work-day are paid for overtime work only if the overtime hours exceed the total norm of work time established by law.

Question: What is the procedure for organizing shift work?

Answer: If the length of the production process exceeds the authorized length of the normal work day, the daily time table for personnel at that enterprise is organized in shifts. With the consent of the trade union committee the administration establishes a shift schedule under which workers change from one shift to another each week. Assigning a person to work two shifts in a row is forbidden. Calling in a worker to carry out job responsibilities outside the shift schedule (not for one's own shift, prior to one's shift) is permitted only in special cases stipulated by law (for example, during a natural disaster, for carrying out work for supplying water, gas, heat, lights, and so on).

A shift schedule is mandatory both for workers and employees. They do not have the right to change the shift sequence without permission of the administration.

Question: Under what circumstances is summary accounting for work time used?

Answer: At enterprises which do not operate continuously, and also at those places where production conditions do not permit observing the established length of daily or weekly work, summary accounting is introduced, with the consent of the trade union committee, in order that the length of work time for a certain period does not exceed the normal number of working hours.

Question: Is it permitted to divide the work day into parts?

Answer: According to the general rule the everyday work norm is divided up in such a way that it is fulfilled with one break for a lunch and rest period not to exceed two hours.

There is one exception to this rule, according to which the work day as established by law can be divided into parts, with a break of more than two hours between them; or, with two or more breaks, including the lunch break (the so-called fragmented work day). At the same time the total length of the work day should not exceed the established norm.

For example, in order to further improve service to the populace and to reduce loss of work time, the USSR Council of Ministers, in a decree of 17 January 1983 (Soviet Law, USSR, 1983, No 5, Article 24), charged the ispolkoms of the city and rayon Soviets of People's Deputies to expand the practice of organizing work at organizations and enterprises of the services sphere according to a fragmented work day.

Question: What is the system for recruiting workers for watch duty?

Answer: Watch duty--that is, the presence of a worker at an enterprise or in an institution, by instruction of the administration, prior to the start of or after the end of the work day, on days off or on holidays, for the purpose of maintaining order and to resolve urgent problems which arise, which do not pertain to the production activity of the enterprise or institute--may be introduced in exceptional circumstances only with the consent of the trade union committee. Assigning a worker to watch duty more than once a month is forbidden.

For watch duty on days off and on holidays, all workers are offered an equal amount of compensatory time, within ten working days of the duty.

When a person is assigned to watch duty prior to the start or after the end of a work day, persons with a standard or with a non-standard work day are authorized to adjust their working hours in order that their work time and watch duty combined do not exceed the established length of the work day.

Hours of watch duty which extend beyond the length of an ordinary (scheduled) work day must be compensated for according to the same procedure used to grant compensatory time off for working on a day off or on a holiday.

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LABOR

DECREE ON NEW WORKING REGULATIONS FOR WORKERS, EMPLOYEES

Moscow EKONOMICHESKAYA GAZETA in Russian No 43, Oct 84 pp 17-18

[Decree No 213 of 20 Jul 84 of the USSR State Committee for Labor and Social Problems [Goskomtrud] on Standard Rules of Labor Regulations for Workers and Employees of Enterprises, Institutions and Organizations]

[Text] In connection with the USSR Law, "On Labor Collectives and Increasing Their Role in the Management of Enterprises, Institutions and Organizations" and the decree of the CPSU Central Committee, the USSR Council of Ministers and the AUCCTU of 28 July 1983, No 744, "On Stepping Up Work for Strengthening Socialist Labor Discipline," and also the Ukase of the Presidium of the USSR Supreme Soviet of 12 August 1983, "On Making Changes and Additions to Certain Legislative Acts of the USSR," the USSR Goskomtrud with the agreement of the AUCCTU has established new "Standard Rules for Labor Regulations for Workers and Employees of Enterprises, Institutions and Organizations" (Decree No 213 of 20 July 1984), a complete text of which is printed below.

The standard rules approved by the Goskomtrud on 29 September 1972 are no longer in effect.

I. General Provisions

1. In keeping with the USSR Constitution, USSR citizens have the right to work, that is, to obtain guaranteed work with payment in keeping with the quantity and quality of it, and no less than the minimum amount established by the state, including the right to select an occupation and the kind of activity and work in keeping with their calling, abilities, occupational training, and education, and taking into account public needs. It is the obligation and a matter of honor for each USSR citizen who is capable of working to work conscientiously in the area of socially useful activity which he has selected and to observe labor discipline.

Socialist labor discipline means not only strict observance of the rules of labor regulations, but also a conscientious and creative attitude toward one's work, high-quality work, and productive utilization of working time.

Labor discipline is provided through the creation of necessary organizational and economic conditions for normal, highly productive work, a creative attitude toward labor, methods of persuasion and education, and also incentives for conscientious labor. Measures of disciplinary and social influence are taken against violators of labor discipline.

A most important area in the work for developing and strengthening socialist labor discipline is effective utilization of the rights granted to labor collectives by the USSR law, "On Labor Collectives and Increasing Their Role in the Management of Enterprises, Institutions and Organizations."

2. The rules of labor regulations have the goal of contributing to educating workings and employees in the spirit of a communist attitude toward labor, further strengthening labor discipline, organizing labor on a scientific basis, utilizing working time efficiently, performing high-quality work, and increasing labor productivity and the effectiveness of public production.

3. On the basis of the present Standard Rules, the ministries and departments, with the agreement of the corresponding central (republic) trade union committees, publish branch rules for labor regulations with respect to the peculiarities of a given branch of the national economy, and labor collectives of enterprises, institutions and organizations, at the instigation of the administration and trade union committee, establish rules for labor regulations with respect to the working conditions of a given enterprise, institution or organization.

4. Questions related to the application of the rules for labor regulations are resolved by the administration of the enterprise, institution or organization within the framework of the rights granted to them, and in cases envisioned by existing legislation and rules of labor regulations--in conjunction with or with the agreement of the trade union committee. These questions are also resolved by the labor collective in keeping with its authority.

II The Policy for Hiring and Firing Workers and Employees

5. Workers and employees realize their right to work through concluding a labor contract for work at an enterprise or in an institution or organization.

6. When hiring a person the administration of the enterprise, institution or organization is obligated to demand from the newcomer:

a) presentation of his labor book properly documented, and if the person is coming to work as a worker or employee for the first time--a certificate of his last occupation issued at the place of residence by the corresponding housing operations organization, rural or village soviet of people's deputies, or street committee (a certificate issued by a street committee must be

verified by the executive committee of the corresponding Soviet of people's deputies), and those discharged from the ranks of the USSR Armed Forces are obligated to present their military discharge to the administration;

b) presentation of the passport in keeping with legislation concerning passports. Hiring without presenting the aforementioned document is not allowed.

When people are hired for work which requires special knowledge, the administration of the enterprise, institution or organization has a right to demand that the worker present his diploma or other document of the education or professional training he has received.

When hiring a worker it is forbidden to ask for documents whose presentation is not envisioned by legislation.

The hiring is documented by an order (instructions) from the administration of the enterprise, institution or organization, which the worker must sign. The order (instructions) must indicate the title of the job (position) in keeping with the unified wage rate and skills reference of jobs and occupations for workers and the distribution chart and wage conditions.

When the appropriate official actually allows someone to work this is regarded as concluding a labor agreement, regardless of whether or not the hiring was documented properly.

7. When a worker or employee is accepted for work or transferred to another job under the established policy, the administration must:

a) familiarize the worker or employee with the work entrusted to him and the labor and wage conditions, and explain his rights and responsibilities;

b) familiarize him with the rules of the labor regulations and the collective contract that are in effect at the given enterprise, institution or organization;

c) instruct him in technical safety, production sanitation, labor hygiene, fire protection and other rules for labor safety.

8. All workers and employees who have worked for more than 5 days are issued labor books under the policy established by existing legislation.

The administration is obligated to issue account books or upon paying wages to issue account sheets to all workers and also to those employees who are being paid piecemeal on the fifth day after they have been hired.

9. The labor contract can be invalidated only with justifications envisioned by legislation.

Workers and employees have the right to dissolve a labor agreement which has been concluded for an indefinite period of time, having notified the administration of this in writing 2 months in advance. When the labor

agreement is dissolved for good reasons envisioned by legislation which is in effect, workers and employees notify the administration of this in writing 1 month in advance.

The time for the performance of the work to which a worker or employee has been transferred for violation of labor discipline (subpoint "d" of point 25) is not included in the time period for the resignation.

When the aforementioned time periods for notification have expired, the worker or employee has a right to cease work, and the administration of the enterprise, institution or organization must give the worker his labor book and settle accounts with him.

When there is an agreement between the worker and the administration the labor agreement can be dissolved even before the time period for notification of resignation has expired. A labor agreement for a fixed period can be dissolved early at the request of the worker in the event of his illness or disability which prevent the performance of the work according to the agreement, violation by the administration of labor legislation or a collective or labor agreement, or other good reasons.

The labor agreement cannot be dissolved on the initiative of the administration of the enterprise, institution or organization without the preliminary agreement of the trade union committee of the enterprise, institution or organization with the exception of cases envisioned by USSR legislation.

The dissolution of the labor agreement is documented by an order (instruction) from the administration.

10. On the day of his release, the administration must give the worker or the employee his labor book with the entry of his release in it and must give him his final pay. The entries concerning the reason for the release must be made in the labor book precisely in keeping with the forms of existing legislation and with reference to the appropriate article and point of the law. The last day of work is considered to be the day of release.

III. Main Responsibilities of Workers and Employees

11. Workers and employees are obligated:

a) to work honorably and conscientiously and to observe labor discipline--the basis of policy in production--to carry out orders of the administration promptly and precisely, to use all working time for productive labor, and to refrain from actions that hamper other workers in the performance of their work duties;

b) to increase labor productivity and simultaneously to carefully carry out jobs under orders and assignments, to meet output norms and normed production assignments, and to achieve overfulfillment of these norms;

c) to improve the quality of work and the products that are produced, not to allow omissions or defects in the work, and to observe technological discipline;

d) to observe the requirements for labor safety, technical safety, production sanitation, labor hygiene and fire protection envisioned by the corresponding rules and instructions, to work in the special clothing and special footwear that are issued, and to take advantage of the necessary means of individual protection;

e) to take measures for immediate elimination of factors and conditions that impede or make difficult the normal production of work (idle time, breakdowns) and to notify the administration immediately of what has happened;

f) to maintain their work station, equipment and fittings and to turn them over to the next worker in clean and working condition, and also to observe cleanliness in the shop (division) and on the territory of the enterprise (institution, organization); to observe the established policy for protecting material values and documents;

g) to protect and reinforce socialist property, to utilize machines, machine tools and other equipment efficiently, to take a thrifty attitude toward instruments, measurement equipment, special clothing and other objects that are issued for the workers to use, to utilize raw materials, processed materials, energy, fuel and other material resources economically and intelligently;

h) to conduct themselves worthily and observe the rules of socialist communal living.

The range of responsibilities (jobs) performed by each worker according to his specialty, qualifications or position is determined by the unified wage rate and skills reference of work and occupations of workers, the skills reference of the duties of employees, and also the technical rules, official instructions and provisions which are approved under the established policy.

IV. Basic Responsibilities of the Administration

12. The administration of the enterprise, institution or organization is obligated:

a) to organize the labor of workers and employees correctly so that each will work according to his specialty and skills, have a work station assigned to him, and before beginning the work entrusted to him, be familiarized with the established assignments and provided with work throughout the course of the entire working day (shift); to provide healthful and safe working conditions, good condition of instruments, machines, machine tools and other equipment, and also normative supplies of raw materials, processed materials and other resources which are necessary for continuous and rhythmic work;

b) to create conditions for increasing labor productivity through the introduction of the latest achievements of science, technology and scientific organization of labor; to carry out measures for increasing the effectiveness of production, improving the quality of work and the products that are produced, reducing the use of less skilled manual and heavy physical labor, improving organization and advancing the art of production;

c) to comprehensively develop brigade forms of organization and incentives for labor, to carry out measures for increasing the effectiveness of the activity of the brigade; to expand the movement for servicing more than one machine tool and combining occupations, and organize the study, dissemination and introduction of advanced devices and methods of labor;

d) to promptly notify the subdivisions, brigades and teams of planned assignments, to provide for their fulfillment with the least expenditures of labor, material and financial resources, implementing measures directed toward fuller disclosure and utilization of internal reserve, the provision of scientifically substantiated norm-setting for the expenditure of raw materials, processed materials, energy and fuel, efficient and economical utilization of them, while increasing the profitability of production and improving other planning indicators of the work;

e) to constantly improve the organization of wages, extensively applying collective forms of payment according to the final results of the work, to improve the quality of norm-setting for labor; to provide for the material interest of the workers in the results of their personal labor and in the overall results of the work, a correct ratio between the growth of labor productivity and the growth of wages, economical and efficient expenditure of the wage fund, the material incentive fund and other incentive funds; to provide for correct application of the existing conditions for payment and norm-setting for labor; to pay wages at the established times;

f) to provide for strict observance of labor and production discipline, constantly carrying out organizational, economic and political-educational work which is directed toward strengthening discipline, eliminating losses of working time, utilizing labor resources efficiently, and forming stable labor collectives; to take measures to influence violators of labor discipline, taking the opinion of the labor collectives into account when doing this;

g) to observe unwaveringly labor legislation and the rules for the protection of labor; to improve working conditions, to provide proper technical equipment for all work stations and to create at them working conditions which correspond to the rules for labor protection (rules for technical safety, sanitary norms and rules, and so forth). When the rules do not contain requirements which must be observed during work in order to provide safe conditions for labor, the administration of the enterprise, institution or organization, with the agreement of the trade union committee, takes measures to provide for safe working conditions;

h) to take the necessary measures for prevention of industrial injuries and occupational and other diseases of workers and employees in cases envisioned by legislation, to grant promptly benefits and compensations related to harmful working conditions (reduced working day, additional leave, therapeutic and preventive nutrition, and so forth), to provide in keeping with existing norms and provisions special clothing, special footwear and other means of individual protection, and to organize proper care for this equipment;

i) to constantly check on the knowledge and observance by workers of all requirements of the instructions for technical safety, industrial sanitation, labor hygiene and fire protection;

j) to develop socialist competition, creating conditions for the labor collective to comprehensively increase labor productivity and the effectiveness of public production, to improve the quality of their work, to reduce the production cost of the products that are produced, to utilize working time, raw and processed materials, energy and other resources efficiently, to fulfill the plans for deliveries under agreements and orders, to carry out socialist commitments successfully, to sum up the results and determine the winners of socialist competition promptly, to increase the role of moral and material incentives for highly productive labor, to solve problems of incentive for leading collectives and workers; to provide for dissemination of advanced practice and valuable initiatives of workers of the given labor collective and others;

k) to consider promptly and introduce inventions and efficiency proposals, to support and encourage production innovators, and to contribute to mass technical creativity;

l) to provide for regularly raising the business (production) qualifications of the workers and the level of their economic and legal knowledge, and to create the necessary conditions for combining work with training in production and in training institutions;

m) to create the necessary conditions for the labor collective to take advantage of the authority envisioned for them by the USSR law, "On Labor Collectives and Increasing Their Role in Management Enterprises, Institutions and Organizations," to contribute to the creation in the labor collective of a businesslike, creative situation, to support and develop in all ways the initiative and activity of the workers, to provide for their participation in the management of the enterprises, institutions and organizations, fully taking advantage of meetings of the labor collectives, permanent production meetings, conferences and various forms of independent public activity; to consider critical remarks from workers and employees promptly and to notify them of measures that have been taken;

n) to be attentive to the needs and demands of the workers, to provide for improvement of their housing and cultural-domestic conditions, to carry out construction, repair and maintenance of residential buildings, dormitories, children's preschool institutions and also enterprises for trade and domestic services and workers' dining rooms right in the enterprises, to render

assistance in cooperative and individual housing construction; to organize accounting for workers who are in need of improvement of housing conditions, to distribute dwelling space in keeping with existing legislation and to provide for extensive publicity when solving these problems.

The administration carries out its responsibilities in the appropriate cases in conjunction with or in agreement with the trade union committee of the enterprise, institution or organization, and also taking into account the authorities of the labor collective.

V. Working Time and Its Utilization

13. The time of the beginning and end of the working day and the break for rest and nutrition are established as follows:

	First Shift	Second Shift	Third Shift
Beginning of work			
Break			
End of work			

In the appropriate cases the length of the workday, including the time of the beginning and end of the workday and the break for rest and food are determined by schedules for shift work which are approved by the administration with the agreement of the trade union committee and with the observance of the established duration of working time for the week or other accounting.

With shift work, shifts that are longer than 8 hours and 15 minutes can be introduced with the permission of the ministry (department) which is coordinated with the corresponding central (republic) trade union committee or trade union council.

The workers and employees are informed of the schedules for shift work, as a rule, no later than 1 month before they go into effect.

The workers take turns and spend equal time on each shift.

The changeover from one shift to another should take place, as a rule, every other week during hours that are determined by the schedules for shift work.

14. The appropriate signals or other means are used to notify the workers and employees of the beginning and end of work at the enterprise, institution or organization, and also the break.

Before the beginning of work each worker and employee must sign in for work, and at the end of the working day he must sign out according to the policy established at the enterprise, institution or organization.

15. The administration must organize keeping track of arrival and departure from work. There should be clocks which show the correct time near the place where the workers sign in.

The administration does not allow a worker who has shown up for work intoxicated to work during the given working day (shift).

16. On continuous jobs it is prohibited to leave work before the replacement worker arrives.

If the replacement worker or employee fails to arrive the senior worker on the job must be notified of this, and he must take immediate measures to replace the shift worker with another worker.

17. On those jobs where, in keeping with production conditions, the break for rest and food cannot be established, the worker or employee must be given the opportunity to eat during working time.

The list of these jobs and the policy and place for eating are established by the administration with the agreement of the trade union committee of the enterprise, institution or organization.

18. Overtime work, as a rule, is not allowed. The administration can use overtime work in exceptional cases and within the limits envisioned by existing legislation, only with the permission of the trade union committee at the enterprise, institution or organization.

19. It is forbidden during working time:

a) to take workers and employees from their immediate job, to call them out or to remove them from their job in order to perform public duties or carry out various kinds of measures that are not related to production activity (all kinds of meetings, seminars, sporting competitions, engagement in artistic independent activity, tourist trips);

b) to convene meetings, sessions and all kinds of conferences on public matters.

20. The sequence of annual vacations is established by the administration with the agreement of the trade union committee of the enterprise, institution or organization, taking into account the need to provide for the normal course of the work of the enterprise, institution or organization and favorable conditions for the recreation of the workers and employees. The schedule of vacations is drawn up for the calendar no later than on 5 January of the current year and the workers and employees are informed of it.

VI. Incentives for Success in Work

21. For exemplary performance of labor duties, success in socialist competition, increased labor productivity, improved product quality, lengthy and irreproachable work, innovation in labor and other achievements in work, the following incentives are applied:

- a) Declaration of gratitude;
- b) Awarding of bonuses;
- c) Awarding of a valuable gift;
- d) Awarding of a certification of honor;
- e) Entry in the book of honor or the honor roll blackboard.

The rules for labor regulations can also envision other incentives.

The incentives envisioned by subpoints "a," "b" and "c" of this point are applied by the administration with the agreement of the trade union committee, and subpoints "d" and "e" in conjunction with the trade union committee of the enterprise, institution or organization. The opinion of the labor collective is taken into account in applying these incentives.

The incentives are announced in an order or instructions, the entire collective is informed of them, and they are entered in the worker's labor book.

When incentive measures are taken, they provide for a combination of moral and material incentives for labor.

22. Workers and employees who are fulfilling their labor duties successfully and conscientiously are the first to be granted privileges in the area of sociocultural and housing-domestic service (passes to sanatoriums and houses of recreation, improvement of living conditions, and so forth). These workers are also given preference for promotions in work.

For special labor services, the workers and employees are recommended to the higher agencies for incentives and for the awarding of orders, medals, certificates of honor, badges, tokens and for the awarding of titles of honor and the title of the best worker in the given occupation.

23. For successes in labor, labor collectives apply measures of public encouragement and send workers up for moral and material incentives; they express opinions regarding the candidacy and the nomination for state awards; they establish additional privileges and benefits from funds that are allotted in keeping with the existing policy for these purposes for innovators and leading production workers, and also for people who have worked conscientiously for a long time within the enterprise, institution or organization.

VII. Responsibility for Violation of Labor Discipline

24. A violation of labor discipline, that is, the failure to perform work duties or improper performance of them when the worker is at fault involves the application of disciplinary measures or measures of social influence, and also the application of other measures envisioned by existing legislation.

25. For violation of labor discipline the administration of the enterprise, institution or organization applies the following disciplinary measures:

- a) Notation;
- b) Reprimand;
- c) Strict reprimand;
- d) Transfer to a lower paid job for a period of up to 3 months or demotion to a lower position for the same amount of time.

For regular violation of labor discipline, absence without good reason or appearance at work in an intoxicated condition, the worker or employee can be transferred to another lower-paid job or to another lower position for the period indicated in the first paragraph of this subpoint;

e) Dismissal. Dismissal as a disciplinary measure can be applied when the workers or employees, without good cause, regularly fail to fulfill the duties for which they are responsible in keeping with the labor agreement or the rules of labor regulations if measures of disciplinary or social influence have previously been applied to the worker or employee for absenteeism (including for absence from work for more than 3 hours within a working day) without good cause and also for appearing at work in an intoxicated condition.

Failure to appear at work without a good cause for an entire working day is considered to be truancy. Workers and employees who are absent from work for more than 3 hours within a working day without good reason are also considered to be truants, and the same measures of liability which are established for truancy are applied to them.

26. For truancy (including for absence from work for more than 3 hours during the working day) without good reason, the administration of the enterprise, institution or organization applies one of the following measures: disciplinary penalties envisioned in point 25 of the present rule; reduction, within the limits established by existing legislation, of the amount of the one-time remuneration for length of service (for work tenure in the specialty at the given enterprise) or deprivation of the right to obtain a percentage increment for length of service for a period of up to 3 months at the enterprise or in the institution or organization where the payment of the one-time remuneration is established or the percentage increment to the wages for the length of service.

Workers and employees who have committed truancy without good cause have their regular vacation during the corresponding year reduced by the number of days of the truancy, but the vacation cannot be less than 2 working weeks (12 working days).

Regardless of the application of measures of disciplinary or social penalties, the worker or employee who has committed truancy (including absence from work for more than 3 hours during a working day) without good reason or who has appeared for work in an intoxicated condition is deprived of either all or part of his production bonus. One can also reduce the amount of his remuneration for the result of the year's work of the enterprise or organization, or the remuneration cannot be paid at all.

27. Disciplinary penalties are applied by the manager of the enterprise, institution or organization, and also by other officials included on a list which is established by the ministry (department).

The administration of the enterprise, institution or organization has the right, instead of applying a disciplinary penalty, to turn the question of the violation of labor discipline over for the consideration of the labor collective, the comrades' court or the public organization.

28. Labor collectives make strong comradely demands on workers who are not conscientious about performing their labor duties; for violations of labor discipline they apply to members of collectives social penalties (comrades' notations, public reprimand); they submit materials concerning the violators of labor discipline for the consideration of comrades' courts; and they raise questions of applying against violators of labor discipline the measures of influence which are envisioned by legislation.

29. Before the application of the penalty, a written explanation must be demanded from the violator of labor discipline. The worker's refusal to give an explanation cannot serve as an obstacle to applying the penalty.

Disciplinary penalties are applied by the administration directly upon the discovery of the crime, but no later than a month after the day of its discovery, not counting the time of illness or when the worker is on vacation.

A disciplinary penalty cannot be applied later than 6 months after the day the crime is committed. The time required for a criminal suit is not included in these time periods.

30. For each violation of labor discipline only one disciplinary penalty can be applied.

When the penalty is applied it is necessary to take into account the severity of the crime that is committed, the circumstances under which it is committed, and the preceding work and behavior of the worker.

31. The order (instructions) for the application of the disciplinary penalty with an indication of the motivation for its application is declared (announced) to the worker who is subject to the penalty, and this must be acknowledged with his signature within 3 days.

If necessary, the workers of the given enterprise, institution or organization are informed of the order (instructions).

32. If within a year from the day of application of the disciplinary penalty the worker or employee has not been given another disciplinary penalty, the disciplinary penalty is erased from record.

The administration, on its own initiative or by a petition from the labor collective, can issue an order (instructions) concerning the removal of the penalty before the year is up if the worker or employee has not had another violation of labor discipline and has proved himself to be a good, conscientious worker.

During the course of the time period when the disciplinary penalty is in effect, incentive measures indicated in the present standard rules are not applied to the worker.

33. The labor collective has the right to withdraw a penalty it has applied early, before a year has passed since the day of its application and also to petition for early withdrawal of a disciplinary penalty or the invalidation of other measures applied by the administration for violation of labor discipline if the member of the collective has not had another violation of discipline and has proved himself to be a conscientious worker.

34. The rules of the labor regulations are posted in the shops (divisions) in a prominent place.

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LABOR

WORK-AT-HOME REGULATIONS, DRAWBACKS CITED

Interview with Uzbek Labor Official

Tashkent EKONOMIKA I ZHIZN' in Russian No 6, Jun 84 pp 51-54

[Interview under rubric "Everything for Man" and subrubric "Economy and the Law": "The Person Working at Home and the Enterprise: Rights and Obligations"]

[Text] In various branches of our republic's industry, work at home is being employed today. This is one of the effective forms of involving free labor resources in social production. The intensive development of this form was the aim of the decisions made by the 26th CPSU Congress, which provide for the appropriate categories of the public -- women with young children, and retirees -- "the opportunity to work an incomplete work day or incomplete work week, to work at home." Work at home acquired its rights of citizenship long ago in Uzbekistan, but at the present time one senses the self-interest in its development especially acutely. There has been a considerable expansion of the areas of its application and an increase in the number of persons who want to try their strength as workers at home. At the present time more than 16,000 persons are employed in this type of production. Last year alone they manufactured output valued at more than 50 million rubles. That amount, incidentally, is more than, say, in 1982, when our magazine published an article about the problems of developing work at home in our republic ("What Can a Worker at Home Do?"). More and more frequently the editorial office has been receiving requests from our readers to explain certain legal and other aspects of working at home.

We have forwarded these requests to the chief of the Labor Conditions Department, UzSSR State Committee for Labor, Ye. G. Vasil'chenko.

[Question] Yevgeniy Gennadiyevich, the question that our readers are most interested in is: who can become a worker at home? Is it anyone who wants to, or are there certain limitations?

[Answer] No such limitations are stipulated by the legislation that is in effect, but there are certain categories of persons who are granted the preferential right to work at home.

Let us imagine the following situation. A woman has three children, the enterprise operates in shifts, and, moreover, it is not located too close to her. Or, for example, one of the children has started to go to school and at first needs special care. What is the woman supposed to do? Hand in her notice?

It so happens that that is exactly what people do. And so mothers become part of that category of people who are usually called housewives. On a republic-wide scale they amount to thousands of skilled workers, who frequently are outstanding experts in their field.

According to statistical data, in Uzbekistan in 1982, out of the total number of working women of able-bodied age, 37.2 percent were women who had given birth to a fourth child, 33.8 to a fifth, 31.7 to a sixth, and 28.5 percent a seventh or more.

These probably are the chief factors that determine the background of our discussion, since it is always important to remember that, in addition to the broad involvement of women in the sphere of social labor, they still retain another social role: they continue to be wives, mothers, and homemakers. Society is attempting to aid them to combine maternity with productive labor.

It is precisely for that reason that women who have children up to 15 years of age occupy the first line among those who are given the preferential right to become a worker at home.

[Question] But who else is granted this right?

[Answer] Disabled persons and retirees (regardless of the type of pension they are receiving); persons who have reached retirement age but have not retired; persons with reduced work capability, for whom the recommendation has been made in the established procedure that they work at home; persons who are taking care of disabled persons or family members who have been ill for a long period of time; persons employed in seasonal operations (during the period between seasons); persons attending full-time institutions of higher learning; and persons who, for objective reasons, cannot be employed in production in the particular locality (for example, in regions where free labor resources already exist).

[Question] Yevgeniy Gennadiyevich, it is well known that potters or, for example, wood carvers work at home rather frequently. What are their rights in this sense?

[Answer] People who have the skill required to manufacture folk-art articles, souvenirs, or unique containers for them can be accepted as workers at home, irrespective of their type of activity or work at other enterprises. In such

instances the legislatively established limitations governing the combining of occupations do not extend to them.

[Question] Must a person who offers his or her labor as a worker at home already possess the necessary occupational skills?

[Answer] Not necessarily. The person can also be trained at the enterprise.

[Question] But does the worker at home have the right to involve the members of his family in the fulfillment of work assignments?

[Answer] Yes, he does.

[Question] Where can the labor of workers at home be used? It is well known that these people create beautiful embroidered skullcaps and carpets, ceramic and engraved articles, typically national confectionery articles, and strings for musical instruments, that Tashkent has an objets d'art factory that produces articles made at home, and that this form of labor is used rather broadly at enterprises in light and local industry, and in the personal-services sphere. But what about a fitter in a high category, for example, who has retired and who wants to work at home? Can he do so?

[Answer] You have touched upon a very serious problem. The labor performed by workers at home can and must be employed in the most diverse branches of the national economy.

And I would particularly like to point this out to the managers of those enterprises where, for the time being, according to statements that we have received from certain comrades, no place has been made for work at home. Take, for example, such branches as machine building, the electronic and electrical-engineering industry -- in those branches people working under home conditions can carry out various assembly operations, including such uncomplicated types of parts processing as adjustment, drilling, welding, etc.

[Question] But aren't the living conditions of the worker at home important in such an instance? Because it isn't every apartment that has conditions that make it possible to carry out that kind of work, isn't that so?

[Answer] Of course. The work is prohibited if its execution creates inconveniences for the person's neighbors. Individual types of work to be performed at home are allowed only with the authorization of the local fire-inspection and medical-inspection agencies.

[Question] What are the formal steps required for getting a job as a worker at home?

[Answer] As in other instances, the formal request is made on the basis of an order issued by the administrators of the enterprise.

For workers at home who have not previously worked in social production, individual labor-record books are initiated after the person has handed in the

first completed assignment. The same procedure is used to make entries in the labor-record books of those persons who already have them.

The computation of the job longevity that is to be taken into consideration when granting a pension begins, for workers at home who have never worked previously, at the moment of concluding a labor contract.

The labor contract governing work at home is concluded, as a rule, in written form. The contract must specify as completely as possible both the basic terms and the additional terms that determine the reciprocal obligations of the two contracting parties.

[Question] Exactly what must be stipulated in the contract?

[Answer] It is difficult to enumerate everything. But, for example, the procedure and deadlines for providing the workers at home with raw and other materials and semifinished goods, the procedure of making settlements for the finished output, the conditions for shipping the articles, the compensation for the cost of the materials if the article is made by materials furnished by the worker himself...

[Question] All right, then. The person has been taken on as a worker at home. How is his labor organized?

[Answer] The enterprise management provides the worker at home, for use without payment, the necessary equipment, tools, and attachments, and is responsible for their prompt repair. If the worker at home uses his own tools and machinery, he must be paid compensation for their depreciation, in the procedure that has been legislatively established. When reciprocally agreed upon, the worker at home can also be compensated for certain expenditures that are linked with the carrying out of work at home for the benefit of the enterprise -- for example, the expenses for electrical energy, fuel, and water.

At enterprises where work at home has been organized, specialized shops are being created, where those operations which cannot be performed under home conditions are carried out: laying out of patterns for cutting many identical pieces at a time, the manufacture of semifinished materials to be used in various articles, etc.

The foremen in charge of organizing production at home issue the pieces (semifinished materials) and the materials. They are also the ones who accept the finished articles, evaluate their quality, and provide the workers at home with transportation to and from the enterprise.

As a rule, the enterprise is responsible for supplying the person with the raw and other materials and conveying the finished articles. But if, on the basis of an agreement between the two parties, the worker at home obtains his own raw and other materials and turns over the finished articles directly to the enterprise himself, the time that he expends for these purposes is included in the work time.

[Question] How is the labor performed by workers at home paid for?

[Answer] On the basis of piecework rates -- on the basis of the work that has actually been completed or the output that has been produced.

Inasmuch as the workers at home allocate their work time at their own discretion, all the work performed by them is paid for at the same rate.

[Question] Are workers in this category given any vacation?

[Answer] The effect of the labor legislation of the USSR and the union republics extends to workers at home. Their work is also regulated by the Statute Governing the Working Conditions of Workers at Home, which was approved by the 29 September 1981 decree of the USSR State Committee for Labor and Social Problems and the Secretariat of the AUCCTU.

Workers and employees who perform work at home are granted an annual vacation that lasts for 15 work days, if, in conformity with the legislation, they do not have the right for a longer vacation.

If, at the enterprise, provision is made for an additional vacation because of uninterrupted work longevity, it is also granted to the workers at home. They can also be offered additional vacations, which are established as a form of incentive award for the fulfillment of individual state and social obligations (active work as part of the volunteer home guard, comrades' court, people's control, etc.).

Women working at home enjoy all the rights granted by Soviet legislation to the mother.

Work at home is something needed both by people and by society. It is also an opportunity for a person who, for various reasons, cannot work at an enterprise to become a participant in the bright, action-filled life of the labor collective. The opportunity also to supplement the family budget, and that is something that should not be discounted. As for the state, it is both the efficient use of the labor resources and an increase in the quantity and an expansion of the variety of consumer goods, without a considerable increase in capital expenditures.

A great amount of attention is being given in our republic to this matter. But in the course of our conversation, I would not like the readers to get the impression that we can give today exhaustive answers to all the questions. That is not yet the case. For example, I have already said that the cut pieces and materials must be delivered by the enterprise to the person who is working at home, and the enterprise must pick up the finished output from him. But transportation is not always available for this purpose. It is necessary to have more Moskvich and UAZ vans. I happened to have a conversation with UzSSR Minister of Local Industry G. N. Nasreddinov (work at home has received the broadest development in that ministry). He stated that the annual allocations of mini-vans do not cover the natural "departure" of that means of transportation. Is it possible that, with a consideration of the real needs of the branch, in the name of the development of work at home, which is

beneficial in all respects, it would make sense to reconsider these allocations? But the transportation problems do not exhaust the problems. How, for example, do we ship vines for wicker articles from the remote areas when the vines are harvested?

The statute stipulates (and I have already mentioned this previously) the payment to workers at home to compensate them for the wear and tear of their own tools that are being used by them, and also for the expenditure of electrical energy, fuel, etc. However, because no differentiated depreciation norms or expenditure norms (once again, those norms have been reckoned in each specific instance) for electrical energy and fuel have been locally coordinated with agencies of UzSSR Ministry of Finance, these compensatory payments are not being made everywhere.

These questions are still awaiting their resolution.

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Work at Home in Novosibirsk

Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 84 p 18

[Article by P. Chemov, general director of the Sibiryachka Specialized Association, Novosibirsk, under rubric "Production, Trade, Services": "Barriers on the Path of Work at Home: Experience of the Sibiryachka Association"]

[Text] The Sibiryachka [Siberian Woman] Production Association for the Organization of Work at Home was created in Novosibirsk at the beginning of the current five-year plan. It is typical that in our association only 162 persons out of 800 workers at home are retirees or disabled persons, and the rest are, as a rule, women with small children, students, housewives, etc.

At first the association had two sectors in operation, which produced output valued at 600,000 rubles. During the three-year period the volumes of production more than quintupled. But the overall "favorable" figures do not give us the right to be complacent. Especially since they do not reflect all the unused reserves and opportunities for work at home. If, for example, when creating the association we had had our own production base -- warehouses, areas to be used as training and acceptance points, a preparatory production facility, auxiliary production facility, motor transportation, and the necessary equipment -- the achieved indicators would have been 2-2.5 times higher. At the present time these problems are being overcome, but we continue to have a large number of unresolved questions which are obviously restraining the development of work at home. Wherein lies the essence of those questions?

We were convinced very quickly that manual labor at home is too expensive and it must be mechanized as quickly as possible. Incidentally, the persons who want to work at home immediately ask about means of mechanizing the work and about various attachments. We make some of the machinery and equipment ourselves, but we are incapable of resolving in a fundamental manner the problem of easing the manual labor. And that is not our task. The orientation on household sewing machines, for example, for the production of

uncomplicated articles is not yet justified: they are less reliable, and the productivity of a machine such as a 2-M with electric drive is 20-25 percent lower than that of an industrial machine in the 1022 or 97 class. But how can we install an industrial machine in a home environment if the machines are produced with a 380-watt electric motor?

And there is something else. There is no sense in discussing the popularity of various kinds of knitted articles among the public. Several plants in our country produce home knitting machines and electric winders. But for the most part they are all being released to the retail trade network. Last year, working through the RSFSR Ministry of Local Industry, we succeeded in partially equipping workers at home with home knitting machines, but we never did get any electric winders.

What this means for the association is attested to by the following figures. At the present time more than 200 knitters are working at home. For the most part they use knitting needles (we purchased only 28 home knitting machines). This year we could have hired 500-700 more knitters to work at home, but, on the one hand, we were restrained by the low labor productivity on knitting of needles, and, on the one hand, the knitters themselves want to work on machines, rather than manually.

In the process of developing the association we encountered a number of problems linked with the paying of individual categories of workers and employees, and the finding of jobs for them. A very insignificant number of workers at home, both in the rural areas and in the urban areas, did not want to accept a 4-6 hour work day. [Those few] people wanted to work 8 hours a day.

It soon transpired, however, that certain workers at home (and by no means a tiny number of them) accepted the terms for an 8-hour work day only subsequently, in order to supplement their production longevity and obtain the appropriate pension. The fulfillment of norms was of lesser concern to them. That was also confirmed by an analysis of the situation (the average individual-output in the planned volume for workers at home came to 30-50 percent). They turned in their output spasmodically and frequently it was of poor quality. But when the association began to develop a statute pertaining to the payment of bonuses to workers at home for smooth operations and for the high quality of output, assuming the fulfillment of the monthly norms, we were literally flooded with requests to be transferred to a 4-hour work day. The external motivations were the most varied, but the essence of them remained the same: it is more profitable to work 4 hours a day than to work 8, because the individual-output norm is 50 percent smaller, but the vacation benefits are the same.

There is apparently a need to change in the statute governing the working conditions of persons working at home the section dealing with vacations. That document was approved by the USSR State Committee for Labor and Social Problems and the Secretariat of the AUCCTU, and the appropriate section does not specify any limitations in the vacation benefits for various categories of workers.

And now I would like to discuss something else. Our attempts to introduce into the statute a provision concerning the payment of a lesser share of the bonus to those persons who work a shortened shift encountered objections on the part of legal experts, to the effect that the percentage of the bonus to be paid is identical for all workers at home. How, under such conditions, we are supposed to provide incentives for people to work 8 hours is unknown.

Finally, in accordance with the existing legislation and instruction guides, we cannot use the labor of persons who are receiving a kolkhoz pension. If they take a job in our association they lose the right to receive a pension, and many kolkhoz retirees, unfortunately, cannot work at home, despite their obvious abilities to do so. In addition, the women who are receiving aid for support of a child lose that aid if they desire, during the period of a prolonged vacation, to do some work at home. In order to do that work at home, they have to resign at their previous place of work. Is that correct?

There is one more question that has been upsetting the organizers of work at home in the areas of Siberia. The overall statute governing the providing of transportation to enterprises that use the labor of persons working at home is correct and does not cause any doubts, if one has in mind urban conditions: under those conditions, it is completely proper to use the IZh-2715 vans that we have been receiving at the rate of one vehicle for every 600 workers at home.

In Novosibirsk Oblast, half the population is situated in rural localities 15-500 kilometers from the oblast center, but it is specifically in the remote villages that there are a large number of people who could be employed at no detriment to their basic job by doing work at home. It is no secret that the "drain" of working hands is most noticeable specifically in those rural areas and villages. But the only way one can get to those places, especially during the winter, is by using transportation highly adapted to use under difficult driving conditions. But that is precisely the kind of transportation we do not have.

It is for these reasons alone that there has been a restraint in a good job that was begun -- the creation in rayon centers of sectors or shops equivalent to production units, with the subordination to them of specialized training and acceptance points in the rural areas and villages. And that would make it possible to arrange for the additional production of consumer goods and to have permanently-assigned personnel in the rural areas.

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LABOR

VOCATIONAL TRAINING IN AGRICULTURAL SECTOR REVIEWED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 8, Aug 84 pp 3-10

[Article by A. Osipov, deputy chairman of the USSR State Committee for Vocational and Technical Education: "Cadres to the Rural Areas"]

[Text] A powerful material-technical base has been created on kolkhozes and sovkhozes and in agroindustrial associations, land-reclamation enterprises, and other organizations. At the present time there are millions of tractors, trucks, and combines in agriculture, as well as a tremendous quantity of other technology. The energy capacities have reached 700 million horsepower and the amount of energy provided to labor has approached 30 horsepower per worker. In the current five-year plan 3600 different types of machines and machinery have been included in the machinery system. In early 1983 slightly more than 2000 different types were produced, but by 1990 the production will rise to 3600.

Our party has posed a first-priority task -- the completion, for the most part, prior to 1990 of the complete mechanization of animal and vegetable husbandry. By that time we will have guaranteed the production of new and modernized energy-intensive tractors, highly productive grain-harvesting combines, other self-propelled machines designed for various purposes, uncoupled wide-cut units, a new generation of anti-erosion technology, as well as a set of machines that are needed for the application of industrial technological schemes for the cultivation of corn, sugar beets, potatoes, vegetables, and other crops.

Consequently, the rapid assimilation and productive use of technology and progressive technological schemes require people with completely developed capabilities, people who are free to accept vocational guidance in the entire system of modern agricultural production.

The high level of technical equipment in production necessitates not only the increase in the person's knowledge and his broader vocational guidance, but also the improvement of technological and labor discipline and organizational spirit, the taking of a creative attitude toward labor, and the increasing of the individual's sense of personal responsibility. "In order for Soviet society to move confidently ahead, toward our great goals," Comrade K. U. Chernenko emphasized at the April 1984 Plenum of the CPSU Central Committee,

"each new generation must rise to a higher level of education and overall culture, occupational proficiency, and civic participation."

The April 1984 Plenum of the CPSU Central Committee approved the Basic Directions in the Reform of the General-Educational and Vocational School System and mentioned "...the great political, socioeconomic, and ideological importance of the reform of the general-educational and vocational schoolsystem as an important component of the planned, complete improvement of developed socialist society." The rise in the educational and cultural level of the nation is a very important prerequisite for the complete reinforcement of our country's ideological-political, economic, and defense potential, the development of socialist democracy, and the successful forward movement of Soviet society along the path toward communism.

The reform has been called upon to raise the work of the vocational schools to a qualitatively new level, to eliminate the shortcomings that exist in their activities, and to guarantee that the students acquire a thorough knowledge of the principles of the sciences and develop firm communist convictions and industriousness. The carrying out of the reform will make it possible to improve the labor indoctrination and vocational guidance provided to the schoolchildren on the basis of the combination of instruction with productive labor, and the training of qualified working cadres in the vocational and technical schools.

The decree of the CPSU Central Committee and the USSR Council of Ministers, entitled "The Further Development of the System of Vocational and Technical Education and the Increasing of its Role in the Training of Qualified Working Cadres," pointed out that there has been an incalculable increase in the role of the system of vocational and technical education as the basic form of the planned training of the worthy generation of the working class and the kolkhoz peasantry, and the carrying out of the changeover to universal secondary and vocational education of the youth.

That decree devotes special attention to the training of qualified workers for agricultural production. A uniform type of educational institution of vocational and technical education is being created in rural areas -- the secondary vocational-technical school, with appropriate departments according to occupations and periods of instruction depending upon the level of education of the students enrolling. Those schools will be created, as a rule, in every administrative rayon and will be part of a rayon agroindustrial association. This will contribute to the better providing of agricultural production with qualified working cadres and to the permanent assignment of them in rural areas. V. I. Lenin's wishes have come true, and currently that type of production that at one time was the most backward type -- agricultural production -- has been transformed "from a trade that is conducted unconsciously, according to the way it has always been done, into a trade that is based on science and the gains of technology" (Lenin, V. I., "Poln. sobr. soch. [Complete Collected Works], Vol 37, p 358).

On the basis of the consistent intensification of agriculture, it is being successfully converted to a modern industrial basis. Changes are occurring in the nature and content of the work performed by the workers employed in

agricultural production, with the labor itself being transformed into a variety of industrial labor and higher demands being made upon the workers' cultural and technical level and their occupational skill. Moreover, labor is becoming more intellectual and creative.

Occupations that are becoming widespread are those in which the functions that are becoming the predominant ones in labor are the functions of operating machines and monitoring their work, as well as the condition of the objects of labor. There has been an increase in the role of scientific knowledge in the area of the organization and management of production and in the process of the use of technology. A question that is becoming an increasingly vital one is the question of overcoming narrow specialization, the question of training agricultural workers who have a broad professional viewpoint and a high level of skill, excellent knowledge, and social participation. In the area of agricultural production this is achieved by means of the mastery of related occupations, by the constant raising of one's level of proficiency and the transition to more highly skilled labor, the mastery of the principles of engineering, agrotechnical, and zootechnical knowledge. At the present time, for the mechanizer, technology is the ordinary means for obtaining the maximum about of output with the minimum expenditures of embodied and live labor.

During the period of developed socialism, general-technical and general-educational training becomes not only a condition for, but also the basic content of a specialty. Moreover, among the other factors of proficiency, education is moving into the first place. For example, a modern tractor operator-machinist must have a thorough knowledge of how to drive a tractor, combine, and truck. In addition, he has the occupational proficiency of fitter with regard to the repairing of agricultural technology and the equipment in animal husbandry. The tractor operator-machinist is becoming the leading figure among all the workers in agriculture. He obtains knowledge and vocational training not only in the area of technology, but also with regard to the increasing of the fertility in the soil, the efficient use of mineral and organic fertilizers, the protection of the plants against diseases, pests, weeds, etc. Without a high level of general-educational training, it is difficult to master this entire area of knowledge.

The complication of designs and the increase in the capacity of the technology require the tractor operator-machinists to have a higher level of knowledge, and to be able to operate machines. He is obliged to make more complete use of the tractive capacity of the tractors, to achieve the more efficient combination of machine and tractor units, to select more correctly the method of moving them and their operating speed, and to observe the standard operating procedures when carrying out mechanized operations. Therefore there must be a constant supplementing and restoration of his knowledge of the design and adjustment of various agricultural machines, and he must study the advanced experience and the achievements of science.

The further intensification of labor is necessitated by the work at increased speeds on the field, the execution of transportation operations while pulling trailers with increased freight capacity, etc. But the use of wide-cut, multi-row, and combined units require the tractor operators to have more thorough knowledge and a higher level of skill in the combining and use of

technology in the field. With an increase in the volume of operations, there is an increase in their material and moral responsibility, inasmuch as there is an increase in the cost of the equipment being operated and the output that has been produced.

The tractor operator-machinist deals not only with the land and technology, but also with animals and plants. Therefore, in addition to technical knowledge, he must have a thorough knowledge of the biological laws and must possess agronomic and biological information. On the basis of its nature, his work, on the one hand, becomes a variety of industrial labor, and, on the other hand, of agricultural labor. His labor is being increasingly filled with intellectual content, for example, as a result of the appearance of tractors that are equipped with a tractor-mounting system, as well as tractor-mounted agricultural machines. The functions of the trailer specialist are being transferred to the tractor operator, but with more complicated knowledge. As tractor-building develops and the number of types of agricultural machines increase, a number of functions of the field crops specialists are also being gradually transferred to the tractor operator-machinist.

Similar changes have been occurring in the nature and content of the labor performed by the workers employed in animal husbandry. For example, with the introduction of automatic lines at animal-husbandry complexes, the requirements made with regard to people's level of proficiency have been rising. The person who services these lines must know the entire cycle of the technological process, and must organize knowledgeably the technical observation and maintenance. He must know various systems of machinery that have been built into the line. He must be familiar with electronics, electrical engineering, hydraulics, pneumatics, etc. In his activities, a considerable place is occupied by elements of mental labor.

In the training of skilled working cadres for kolkhozes, sovkhoses, interfarm, and other agricultural enterprises and organizations, a leading role is assigned to rural vocational and technical schools. Thanks to the constant concern and attention that have been shown by the party and the government, during recent years there have been large quantitative and profound qualitative changes in the rural vocational and technical school system. That school system has improved in complete conformity with the party's Leninist line, as a school of labor proficiency and communist indoctrination.

The transition to the training of workers with secondary education has become the chief peculiarity of the present-day stage in the development of vocational and technical education in rural areas. The secondary rural vocational and technical schools have been transformed into leading educational institutions for the training of highly qualified workers with a broad area of specialization, and for the formation of a completely developed individual. In the long run these schools will become the basic schools for guaranteeing the occupational general education and communist indoctrination of the workers. They are a new type of educational institutions, which correspond most completely to the requirements of agricultural production and which guarantee the organic interrelationship between instruction and productive labor.

The training of qualified workers for agricultural production has been growing and improving with every passing year. There has been a reinforcement of the material-technical base of the rural vocational and technical schools. During the last three years of the current five-year plan alone, buildings to accommodate an additional 110,000 students have been turned over for operation. Simultaneously, schools have opened in accommodations that have been turned over on the basis of decisions made by the local Soviet agencies. The number of rural vocational and technical schools during 1981-1983 alone increased by 196, and as of the beginning of 1984 reached 2128, with a student body of more than one million persons.

The educational institutions in vocational and technical education provide their graduates, in addition to vocational training, general secondary education also. The network of those schools by the beginning of 1984 constituted 1717, or almost 80 percent in the total number of schools. They have been developing with especially rapid rates in the Ukraine, Belorussia, and Lithuania; and in Leningrad, Belgorod, and Kharkov oblasts, Mari ASSR, Georgian SSR, Kirghiz SSR, and Estonian SSR all the rural schools have been changed to secondary ones.

During recent years, in addition to secondary rural vocational and technical schools, there has been a further development of the training of qualified workers in individual groups of rural vocational and technical schools from among persons who are graduates of the secondary general-educational school. They take vocational instruction there in reduced periods of time. In 1983 more than 180,000 persons were accepted there. Life has completely confirmed that for secondary-school graduates who are entering the sphere of agricultural production, this form of training is the most efficient route for the mastery of their occupations.

At the present time 70 percent of the students in rural vocational and technical schools are being instructed on the basis of the curricula for secondary vocational and technical schools. Thus, the rural schools are making their contribution to carrying out the universal secondary education of rural youth, and to the acceleration of the rise in the cultural and technical level of the agricultural workers and the further socioeconomic transformation of the rural areas, which situations correspond to the Basic Directions in the Reform of the General-Educational and Vocational School System.

In conformity with the decisions of the party's 26th Congress and the May 1982 Plenum of the CPSU Central Committee, steps have been carried out in rural localities to achieve the further improvement in the working conditions at the vocational and technical schools. As a result there has been an increase in the number of students and an improvement in the quality of worker training. For example, in Omsk Oblast, Secondary Vocational and Technical Schools No. 28 and 32 are training workers well for the farms in Isil'kul'skiy and Moskalenkiyskiy rayons. School No. 28 specializes in the training of tractor operator-machinists with a broad area of specialization, and School No. 32 trains mechanizers for animal-husbandry farms and machine-milking experts. More than 500 qualified workers are trained there every year. Therefore all the farms in these rayons are provided almost completely with mechanizer

personnel by drawing on those schools alone. Similar examples exist in most of the oblasts and republics. At the present time the share of tractor operator-machinists on kolkhozes and sovkhozes who are graduates of rural vocational and technical schools has been sharply increasing.

The rural vocational and technical schools have won a large amount of authority in rural areas. Many of them have become the center of technical propaganda for all that is new, advanced, and progressive. The local agricultural agencies give them the responsibility of carrying out many measures aimed at raising the proficiency level and retraining the personnel in the mass professions, and in the study of new technology and progressive technological schemes in production. In many rural vocational and technical schools, the material base is widely used for providing vocational guidance to students in the upper classes of general-educational schools.

At the present time among graduates of the rural vocational and technical schools 440 persons are Heroes of Socialist Labor and many others have been given national awards. At the Leningradskiy SPTU [Rural Vocational and Technical School] No. 12, Krasnodar Kray, 17 graduates have been granted the high rank of Hero of Socialist Labor. In recognition of the success achieved in the training of qualified workers for agricultural production, five of the best rural vocational and technical schools have been awarded the Order of the Red Banner of Labor; five, the Order of the Badge of Honor; eight, challenge Red Banners of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU, and the All-Union Komsomol Central Committee; nine, Leninist Komsomol bonuses; and more than a hundred, AUCCTU bonuses.

Secondary rural vocational and technical schools are currently instructing future workers on the basis of new lesson plans and curricula that make it possible to raise the scientific and ideological level, to improve the organization of instruction and the studying of progressive technological schemes, and also to guarantee to a greater degree the successiveness and interrelationship of vocational-technical and general-educational training, and on that basis to improve the quality of the training of working cadres. For the training of qualified workers from among those persons who are graduates of the secondary general-educational school system, provision has been made for differentiated periods of instruction, with a consideration of the labor training received by the schoolchildren. Zonal peculiarities of individual regions have also been taken into consideration.

In order to increase the quantity and improve the quality of the training of cadres in the rural vocational and technical schools, joint decrees with USSR Minsel'khoz [Ministry of Agriculture] and USSR Goskomsel'khoztekhnika [State Committee for Supply of Production Equipment for Agriculture], for each five-year plan long-range assignments are established for training in the schools the workers in the necessary occupations. In 1983, as compared with 1980, the number of graduates in the vegetable-husbandry occupations increased by 11 percent; and in animal husbandry, 50 percent. More than 70,000 animal-husbandry specialists were training. Approximately 23,000 workers were trained for USSR Goskomsel'khoztekhnika. The number of persons trained for the enterprises and organizations in the country's system of land reclamation and water management was 50,000. In order to improve the work of the land-

reclamation schools, jointly with USSR Minvodkhoz [Ministry of Land Reclamation and Water Resources], a decree was issued in December 1983. That decree defined the measures for improving the staffing of schools and expanding the training of the workers in the necessary occupations.

There has been a constant increase in the volume of operations pertaining to the training of workers for all branches of agriculture. During the first three years of the current five-year plan, approximately 1.5 million persons were trained for vegetable husbandry, including more than a million tractor operator-machinists. A total of more than 2.1 million workers were trained in vocational and technical schools during those years. In addition to the training of new young cadres, the rural vocational and technical schools retrain mechanizers for work on new types of tractors, combines, and agricultural and land-reclamation machines. During the years of the 11th Five-Year Plan which have elapsed, the schools have retrained 350,000 persons.

The further increase in the training of workers for agricultural production in the vocational and technical schools is being restrained as a result of shortcomings in filling them. Although the overall plans for admission of young people to the rural vocational and technical schools are being overfulfilled every year, the secondary rural vocational and technical schools have not been fulfilling the plans for the acceptance of students. During the years of the 10th Five-Year Plan alone, the shortfall in admission was approximately 28,000 persons. During the first three years of the current five-year plan, the plan for admission to secondary rural vocational and technical schools was fulfilled by 93 percent. Prior to the carrying out of the reform, the pedagogical collectives at the rural vocational and technical schools most frequently operated individually in conducting the propagandizing of the need for combining education with vocational training among the students in the general-educational schools, rural youth, and their parents. This did not always yield the desired effect. At the present time, however, all the organizations are devoting the most careful attention to the questions of filling the schools.

In conformity with the Basic Directions for the Reform of the General-Educational and Vocational School System, in the long-term view the schools will admit twice as many graduates of the incomplete secondary schools as are being admitted at the present time. It is foreseen that the Councils of Ministers of the union republics will isolate in the single plans for filling the educational institutions the contingents of graduates of the incomplete secondary school and the secondary general-educational school in the current years in complete conformity with the plans for acceptance of students into the vocational and technical schools.

In order to expand the training of qualified workers to go into the animal-husbandry branches, questions have been resolved concerning the payment to students in the rural vocational and technical schools, from among those persons who have graduated from secondary general-educational schools and who have received instruction there in the principles of animal husbandry, a stipend in the amount of 96 to 104 rubles a month. In addition, it has been authorized for sovkhoses and other agricultural enterprises to pay the graduates of secondary vocational and technical schools who are being accepted

for permanent employment, a lump-sum grant in aid to set up a household -- 500 rubles. These and other measures will make it possible to achieve a considerable improvement in the filling of the schools.

The further increase in the training of qualified cadres for agriculture, the changeover basically to the training of workers with secondary education, depends largely upon the development of the network of rural vocational and technical schools. It cannot be deemed to be correct that at the present time out of 2970 rural rayons in which it is necessary to schools, they are operating in only 2130 rayons. The basic reason for this is the unsatisfactory construction of them. The plan for the first three years of the five-year plan for the activity of accommodations for students was fulfilled by only 76 percent. The construction of rural schools was carried out in an especially unsatisfactory manner in Azerbaijan, Latvian, Turkmen, and Kazakh SSR. The construction of rural vocational and technical schools is being carried out unsatisfactorily by USSR Minvodkhoz and USSR Goskomesel'khoshtekhnika.

The Communist Party and the Soviet government have assigned the task for 1984-1990 of assuring that, in every agricultural rayon, as a rule, a secondary rural vocational and technical school will be created. That will make it possible basically to concentrate the entire training of workers for agriculture in the vocational and technical schools and to guarantee the better assignment of them to the farms.

When expanding the training of qualified workers for agriculture, the Soviet government devotes a large amount of attention to the further reinforcement of the training-materials base of the educational institutions and this has been yielding positive results. For example, in the Kolyvan Secondary Rural Vocational and Technical School No. 9, Novosibirsk Oblast, all the instructional workshops, laboratories, and other shops are equipped with the latest technology, instruments, trainers, and other modern equipment. The school has 55 tractors of different makes, 20 grain-harvesting combines, 23 trucks, and more than 150 other agricultural machines. It has well-equipped technical maintenance stations for tractors and trucks, and a truck and tractor practice ground. The instructional farm has more than 1300 hectares of arable land. A similar training-materials base exists in many schools in all republics and oblasts, in every kray.

During recent years the quantity of modern, energy-intensive technology has been increasing at the schools. Today tractors of types K-700A, K-701, T-150, and MTZ-82 -- constitute approximately 40 percent of their overall volumes; and Niva, Kolos, and Sibiryak combines constitute more than 90 percent. A large amount of assistance in equipping the machine-tractor pool in a number of republics is provided by agricultural agencies. In the RSFSR alone, every year, 5000-6000 units of agricultural technology are sent to the schools by agricultural agencies.

A considerable amount of work has been done to create at the schools instructional workshops, laboratories, and other shops, and to equip them with the missing graphic aids for instruction and technical means of instruction. At the present time all the educational institutions have movie cameras,

magnetic tape-recorders, video tape-recorders, Linguaphone equipment, and various means of programmed instruction. The secondary rural vocational and technical schools of Lithuanian SSR have accumulated interesting experience in the use of radio and television in the teaching process. They have created television studios and all the instructional workshops and laboratories have been provided with radio equipment. Rich experience in the complete use of technical means of instruction has been accumulated in the rural vocational and technical schools of Khmel'nitskiy Oblast. Their work has been approved by the board of USSR Gosprofobr [State Committee for Vocational and Technical Education].

During the years of the 10th Five-Year Plan and the current one, the All-Union Association of Production Enterprises has manufactured more than 16,000 sets of instructional graphic aids for workshops dealing with the desire of agricultural and land-reclamation machines, with the equipment used on animal-husbandry farms and complexes, and with the electrical equipment in self-propelled technology. The problems have been worked out with the series production of trainers for teaching how to operate tractors, excavators, and trucks.

Approximately 300 different titles of textbooks and teaching aids for the training of qualified workers have been published, as well as a large quantity of training posters, motion-picture films and film strips, methodological aids, reference books, etc. The production of teaching aids dealing with progressive technological schemes for the growing of agricultural crops, and with new technology, has been organized. The textbook "Sel'skokhozyaystvennyye traktory" [Agricultural Tractors] was been awarded a USSR State Prize.

At the same time it must be noted that in many rayons, oblasts, and republics the providing of the schools with agricultural technology is lagging behind the rates of development of the network of educational institutions. But now this has been converted into an inhibiting factor in the fulfillment of the decisions of the party and the government concerning the reform of the general-educational and vocational school system. The schools in Uzbek SSR and Azerbaijan SSR have been especially poorly provided with agricultural technology. In those republics each rural vocational and technical school has only 8 tractors, 3 trucks, 3 grain-harvesting and special combines, and fewer than 10 agricultural machines. This is almost one-sixth to one-fifth the amount of the average per school throughout the country. There is a similar situation in the schools of Turkmen SSR, where each school has only 4 tractors, 3 special combines, and 5 pieces of various kinds of agricultural machines. What kind of quality in the training of qualified workers can we be discussing when, in Secondary SPTU No. 11, Bukhara Oblast, for every 500 students there are only 5 tractors and a small quantity of agricultural machines.

The decree of the April 1984 Plenum of the CPSU Central Committee, entitled "The Basic Directions in the Reform of the General-Educational and Vocational School System," pointed out the need to reinforce the material base of education, to guarantee the prompt fulfillment of the plans for the construction of general-educational schools and vocational and technical

schools, to repair school buildings and structures, and to improve the supplying of the schools with the necessary stock and educational graphic aids, and to show constant concern for the pedagogical cadres and the improvement of their everyday working and living conditions.

For purposes of the better organization of labor instruction, indoctrination, and the vocational guidance of the students, provision was made for assigning to each general-educational school and vocational and technical school a base enterprise, organization, or institution. The administrators of the base enterprises, in addition to the directors of the educational institutions, will bear the personal responsibility for the labor instruction of the schoolchildren and for the safe working conditions for them.

Under conditions of the rapidly growing mechanization and automation of agricultural production, there has been an increase in the requirements made upon the quality and content of the occupational training of the mechanizer cadres and other agricultural workers. Practical life has shown us that instilling in the students the complete set of initial mental abilities and practical skills in their occupations is possible only under conditions of training farms where the production is subordinate to the instruction goals.

During the first three years of the 11th Five-Year Plan which have elapsed, the number of training farms has increased by more than 100 and has reached 1336, including 1128 training farms at secondary rural vocational and technical schools. There has been an increase in the number of training farms in RSFSR, Uzbek, Kazakh, Georgian, and Azerbaijan SSR. The training farms currently have more than 598,000 hectares of land (including 364,000 hectares of arable land), 32,000 head of cattle, 67,000 hogs, and 34,000 sheep.

Every year more than 70 percent of the students in the first and second years of training receive production instruction on the fields and at the animal farms of the training farms. In the process of fulfilling their practical projects involving the raising of agricultural crops, the students produce more than 3 million quintals of grain, more than 350,000 quintals of potatoes, as much as 300,000 quintals of milk, more than 85,000 quintals of meat, and a large amount of other output. A large amount of it is sold to the state or consumed in the social-nutrition sector for the students at the rural vocational and technical schools. In addition, during the period of the practical production work, the students at the rural vocational and technical schools render a tremendous amount of assistance to the farms in the carrying out of agricultural operations. For example, in 1983 alone, during the period of practical production work, the students plowed up 6.2 million hectares of land, sowed 7 million hectares, harrowed and cultivated 14 million hectares, harvested grain crops from 3.9 million hectares, mowed and laid into long piles the grain crops on 4.2 million hectares, and threshed approximately 7 million tons of grain. The students in the rural vocational and technical schools in the southern part and center of the European part of the USSR, during the period of practical production work, annually help the workers of Kazakhstan to bring in the harvest.

In the rural vocational and technical schools, special attention is paid to improving the ideological-political, labor, and moral indoctrination of the

students. The indoctrinational work with them is carried out during the entire period of instruction at the theoretical and practical classes and on their non-classroom time. Most of the students have been taken into amateur performing clubs, technical creativity clubs, clubs dealing with a specific subject, or sports groups. Lectures and discussions are given regularly, dealing with questions of legal indoctrination, etc. All the schools participate in the Orlenok [Eaglet] All-Union Military-Sports Game. The schools organize competitions for the title of "Best Rural Vocational and Technical School," a competitive inspection for the best training farm, and the all-union competition among students for the rank of "Best in His Occupation."

One of the most important problems is the assignment of the graduates of the rural vocational and technical schools in agricultural production. Annual random inspections attest to the fact that most of them are working successfully in the occupation that they have acquired. On many farms and even in many rayons the basic nucleus of the mechanizers is made up of SPTU graduates. For example, in Kurchumskiy, Samarskiy, and Bol'shenarymskiy Rayons of East Kazakhstan Oblast, all the mechanizers are graduates of the vocational and technical school system. At the Novonezhinskiy sovkhos-technicum, Kustanay Oblast, more than 74 percent of the tractor operator-machinists are graduates of rural vocational and technical schools. There is a similar situation in Sapozhkovskiy and Shilovskiy Rayons, Ryazan Oblast; and Bazarno-Karabulakskiy and Pugachevskiy Rayons in Saratov Oblast. However, this state of affairs with regard to the assignment rate by no means applies everywhere. For example, in Moldavian and Latvian SSR, almost every other graduate fails to remain on the farms. A considerable number of graduates leave because the farms managers fail to show an attentive attitude toward them, because they are not being used in the specialty in which they were trained, because they have not been provided with housing, are assigned to old technology, are not provided the benefits that are available for young mechanizers, etc.

The further improvement of the training of qualified workers largely depends upon the qualitative makeup of the engineer-pedagogical workers at the rural vocational and technical schools. With the tremendous amount of help provided by the party and Soviet agencies, approximately 8000 specialists with higher or secondary education are sent to work in the schools every year, including more than 2000 persons who are sent from production areas.

The training of instructors in the special subjects is being carried out at the engineer-pedagogical departments at 14 agricultural institutions of higher learning, and production-instruction experts at 32 industrial-pedagogical technicums under USSR Gosprofobr. A well-branched system has been organized and is in operation for providing refresher training to the workers at the rural vocational and technical schools. However, for the country as a whole, more than 20 percent of the instructors of special subjects do not have higher education, and in Kazakh and Uzbek SSR, approximately 40 percent. In 1983 the schools had a shortage of approximately 3000 production-instruction experts. In addition, among the working foremen in a number of oblasts of Russia and Kazakhstan, as many as 40 percent do not have secondary special education.

During the period of the improvement of developed socialism, the role of the school is increasing more and more. And the vocational and technical training institutions have been recognized as being a good school for the training of qualified cadres. Every other person who is now working began his labor life there. At a meeting with the workers of the Serp i Molot Metallurgical Plant in Moscow, Comrade K. U. Chernenko said, "The school of labor, the school of life, the school of political work among the masses is the most reliable school." Then he went on to say, "The well-organized labor of adolescents, the precise rhythm and order on the job, the spirit of being welded together in labor, the spirit of collectivism must, in the practical situation, teach the children the science of life."

On the basis of the decisions of the party and the government, people everywhere in the USSR have begun to carry out the school reform. Its successful conduct will make it possible to achieve a fundamental improvement in the labor indoctrination and vocational guidance of the schoolchildren on the basis of the combination of instruction and productive labor, to improve the training of qualified working cadres in the vocational and technical schools, and to supply universal secondary education of the youth with universal vocational education.

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LABOR

PRODUCTIVITY-WAGE RELATIONSHIP IN FARM SECTOR WEIGHED

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[Article by A. Vorontsov, doctor of economic sciences, All-Union Scientific Research Institute of Agricultural Economics: "Current Issues in Growth and the Relationship Between Productivity and Wages"]

[Text] Under socialism the preferential growth of labor productivity compared to wages results from the action of the system of economic laws, given the decisive role of the basic economic law reflecting the link between growth in social production and raising the living standard of the workers by means of establishing an optimal relationship between production, consumption and accumulation. In this connection comrade K.U. Chernenko has noted that "serious work must be done to achieve a substantiated relationship between labor productivity and wages. We must not forget that preferential growth for labor productivity relative to growth in wages is an objective economic law of socialism and consolidates the material base for improving the national well-being and implementing social programs."

Fundamental questions and key tasks in the development of production forces and improvements in production relations are revealed in these current theoretical principles, and they express the economic strategy of our party, which is that only on the basis of labor productivity growth does the socialist state have the material opportunities for pursuing a steady course toward raising the level of wages.

It should also be noted that on the plane of general theoretical-methodological bases, growth and the relationship between productivity and wages occupy an important place among the main social and production-economic proportions of the national economy.

Distribution of the aggregate social product is effected taking into account the fact that acceleration in the rates of scientific and technical progress and production intensification are determined by the law-governed pattern in the relative growth in material expenditures in the gross social product, while the rapid development of the nonproduction sphere and improvements in pensions and privileges for the population result in a need for preferential growth in public consumption funds compared with the increased share of national income allocated for labor.

In order to prevent a relative decrease in the share of accumulation in national income, under these conditions preferential growth is essential for labor productivity compared to wages growth and real income for the population. The correctness of this methodological tenet is fully confirmed in the practical work to build socialism in our country.

During the period 1965-1984 significant steps have been taken to improve the organization of wages in agriculture. To this end the salaries-for-post and wage rates for the main categories of workers have been increased and a number of new additions have been made to the Standard Instructions on Wages in order to strengthen the influence of wages on the final results of production; the rights of labor collectives have been significantly extended in the field of applying the established regulations on wages, the material interest of vehicle operators and livestock farm workers, and of intrafarm subdivisions working under collective contracts has been enhanced, wage rates have been increased for output, the salaries-for-post for leading workers, specialists and employees have been increased, and conditions for and the sizes of incentive payments and normativ indicators for yield and cattle productiveness, all stable for a 5-year period, have been introduced.

Given their creative application under the specific conditions of production, the existing wage systems now make it entirely possible to insure sufficiently great material interest on the part of agricultural workers to develop production and improve labor productivity. However, despite this, in practice the mechanism for establishing evaluations and making additional payments and bonuses for output often is not linked with the production tasks of the primary labor collectives and of individual workers or with their interest in assuming stepped-up plans for the production of output. This leads to additional expenditures from the wages fund without any corresponding increase in the production of agricultural output. In part, because of this labor productivity growth rates are lagging behind growth rates in wages, prime costs are rising, and efficiency in agricultural production is falling. Therefore, studies and experiments are now being conducted to overcome the inadequate degree of agreement between practical work in production planning and cost accounting and the organization of wages.

It is particularly important to resolve in a scientifically substantiated way questions of zonal differences in the levels of and growth rates for productivity and wages, and to take steps to equalize them at kolkhozes and sovkhoses that have the same production conditions so as to achieve equal pay for equal work. It is necessary to insure an effective interconnection between the wages systems and the stepped-up plan for the production of output, the forms of labor organization and the systems of internal cost accounting, and to introduce comprehensive normativs for wages expenditures per unit of output and enhance the role of profit as a factor in increased production efficiency and as a source of bonuses.

Among the general theoretical law-governed patterns and relationships between productivity and wages, the chief one is the objective need for preferential growth in labor productivity compared with wages growth on the scale of all material production. The basis of this law-governed pattern is the constant

and permanent need of a socialist society to produce the necessary amount of surplus product to provide material support for scientific and technical, socioeconomic and cultural progress, which requires enormous and increasing capital investments, which is possible only given high accumulation norms, and also given a level of consumption that is in line with the economic opportunities at any given stage in the development of socialist society.

In agriculture the increased attention being devoted to questions concerning the correct relationship between productivity and wages is explained by the fact that the mutual influence of these indicators is growing with respect to growth in social production. A profound and comprehensive scientific approach is therefore very important, on the one hand to reveal and utilize reserves and ways for raising productivity and wages, and on the other, to observe the economic laws, national economic proportions and the creation of technical-economic conditions that insure high but substantiated rates in the interconnected growth of these indicators. Herein is expressed the dialectic unity of the development of production forces and improvements in production relations. A correct understanding of theory and practice in problem solving is an important condition for expanded socialist reproduction and the successful realization of the chief principle of distribution--wages in accordance with the quantitative and qualitative contribution made to social production.

It is also necessary to take into account the fact that the achievements of scientific and technical progress, comprehensive intensification, specialization and concentration in agricultural production, and its integration with the sectors of the agro-industrial complex, together with the improvements in the management of the agro-industrial complex and agriculture, improvement in the organizational structure of kolkhozes, sovkhozes and associations and the introduction of internal cost accounting and the collective contract will all result in definite positive changes in the production proportions within the sector.

The urgency of finding a comprehensive solution to the problem lies in the fact that, depending on the degree of economic substantiation for this proportion, changes also occur in the volume and structure of the gross agricultural product. Increasing this product, and especially its integral part--newly created value--can be achieved through high and stable rates in productivity and wages growth rates, given an optimal relationship between these indicators.

Economic analysis of growth and the relationship between productivity and wages on the sovkhozes and kolkhozes in the USSR at the different stages in their development shows that these indicators have not always been by any means the same. Each period is characterized by differences in the capital-to-labor ratio and the power-to-worker ratio, capital investments, supplies of equipment, mineral fertilizers and chemical agents, and also skilled personnel, and the levels of scientific and technical progress and production intensification.

The features of agricultural production have also made a definite impression on growth and the relationship between productivity and wages. The presence in this sector of labor factors such as the land, plants and animals, increases the dependence of man's production activity on the elemental forces of nature. This dependence is frequently determined in different directions, and it

substantially increases or decreases product yield and raises or lowers the level of productivity and of wages. Over the past 50 years in the USSR 24 years have been droughty. Of all the elemental forces of nature drought does the greatest harm to agriculture. Accordingly, growth and the relationship between labor productivity and wages at the sovkhozes and kolkhozes, particularly with a wage system based on final results in the production of agricultural output, depend to some extent on natural factors. The lack of conformity between the work period and the production period, the seasonal nature of agricultural labor, the lagging of kolkhozes and sovkhozes in terms of equipment supplies, and also in terms of levels of labor productivity and wages compared with industrial enterprises, also affect this proportion.

The aggregate of specific historical conditions and economic-political tasks determining the main directions in the development of the country's national economy in general and of agriculture, as applied to the basic tasks in the stages of the building of socialism and communism, has also exerted a marked influence on growth and the relationship between labor productivity and wages.

For example, in contrast to the state enterprises, at kolkhozes the specific manifestation of the law of distribution according to labor has its own special features. They result from the fact that the labor of the kolkhoz farmers is paid for through the social product of an individual kolkhoz. Under these conditions, by making use of its right in the organization of wages to use the wage rates for sovkhozes, the kolkhoz independently establishes a system of wages and the size of the wages fund by proceeding from the economic opportunities of its own farm; and these opportunities result from the development levels of its production forces and economic efficiency in production. Therefore, at kolkhozes, in the establishment of relationships between labor productivity growth and wages decisive significance attaches to the magnitude of gross income allocated for personal consumption by the kolkhoz farmers, and to the proportion between the wages fund and the public consumption funds (deductions to the centralized social security fund and the social insurance fund in accordance with state-established procedures, and also internal kolkhoz public consumption funds created independently, depending on the economic opportunities of the kolkhozes).

Before the use of the guaranteed wage, the wages funds at kolkhozes used to be formed from what remained after replacing the value of assets used in production, meeting obligations to the state and the creation of the public funds. Under these conditions, particularly in economically weak kolkhozes, wages were lower than the socially necessary level. The size of wages was determined wholly by the economic development at each individual farm. Accordingly, the level of wages at the kolkhozes was connected with the socially necessary level of remuneration mediated, but not directly, by the wages for workers and employees at socialist state enterprises, including the sovkhozes.

Use of the remainder principle for allocating assets for wages at kolkhozes resulted from objective circumstances: the considerable proportion of the labor force engaged in the country's kolkhoz-cooperative sector, the low labor productivity at kolkhozes, and the lack of economic conditions essential for a guaranteed wage.

At a certain stage in the development of the country and of kolkhoz building, when the level of labor productivity had been significantly raised at the kolkhozes and their economies had been reinforced, marked shortcomings were noted in the remainder method for forming the wages fund. The need for a fundamentally new approach to the formation of the wages funds at kolkhozes became increasingly obvious. A new procedure was established in the 16 May 1966 CPSU Central Committee and USSR Council of Ministers decree "On Enhancing the Material Interest of Kolkhoz Farmers in the Development of Social Production." Under the provisions of the decree, in the distribution of gross income the wages fund for kolkhoz farmers was to be formed as a priority. Thus was determined the material basis of the guaranteed wage for kolkhoz farmers as applied to the wage rates for corresponding categories of workers at sovkhozes.

While observing the general law-governed pattern of preferential labor productivity growth compared to wages, in the practical building of the economy the socialist state did not exclude the opportunities and needs in certain sectors, given the specific conditions, and at individual periods insured more rapid growth in wages. This was especially important for the kolkhozes and sovkhozes of the USSR.

On the historical plane, when considering the problem of growth and the relationship between labor productivity and wages at the country's sovkhozes and kolkhozes, it is also important to note certain of its aspects. Thus, during individual periods the dynamics and level of the nominal (monetary) wage did not match the dynamics and level of the real wage, since changes were being made in the indexes for state retail prices for consumer goods. The changes in the retail price index were particularly great, and for this reason during the period 1926-1955 the changes in the monetary wage were also great. Consequently, the relationship between labor productivity and wages was manifest during this period in the form of the proportions of labor productivity growth and monetary wage growth and labor productivity and real wages. During the years of the prewar and postwar five-year plans the determination of this proportion was subordinated to a twofold task: economic growth and the development of sovkhoz and kolkhoz production, and improving the material well-being of sovkhoz workers and kolkhoz farmers. Here, by contributing part of its accumulations to the development of socialist industry, the creation of new industrial sectors and the training of scientific, engineering-and-technical and highly skilled personnel, agriculture was essentially taking an active part in solving the important socioeconomic task of its own retooling and on this basis insuring its own economic growth with the aid of socialist industry.

Now, however, agriculture remains a sector in which, together with growth in the production output-capital ratio and materials intensiveness, wages are also increasing per unit of comparable volume of gross agricultural output. As a result, the yield of gross agricultural output per unit of total production expenditures and of the wages fund is declining. This is confirmed by the dynamics of the volumes of agricultural output and wages expenditures in actual prices and conditions, taken over a 22-year period (1961-1982). In order to overcome this kind of long-term deviation from the general law-governed pattern of economic development, stabilization is essential, followed, to the extent possible, by a decrease in the aggregate expenditures of embodied and live labor

per unit of agricultural output. This is a priority task in creating the material prerequisites for improving efficiency and insuring the steady development of agricultural production.

Studies that we have conducted show that specific, scientifically substantiated measures must be implemented in order to resolve these so very important economic problems. In work on them it is essential to pay attention to the general law-governed patterns in the relationship between labor productivity and wages, and to the production and socioeconomic aspects of the problem, the analysis and evaluation of the interconnection between these indicators at the sovkhozes and kolkhozes of the USSR at different stages, and the theoretical substantiation of specific methods forming the bases of their establishment. These questions are important for agriculture. On the one hand they require increasing amounts of industrial means in production, while on the other, they insure the raw materials base for industrial sectors, particularly those producing staple goods (foodstuffs, clothing, footwear).

At the same time it must be pointed out that in agricultural practice, in a number of the most recent five-year plans incomplete use has been made of the opportunities and advantages of the intensive form of expanded socialist reproduction. Before the creation of the new management organs for the agro-industrial complex, because of organizational-economic and material-technical reasons there was a slackening in the implementation of measures to switch from partial to comprehensive intensification making it possible to accelerate production growth rates, improve labor productivity and enhance efficiency in agriculture. This can best be judged from the analysis of growth and the relationship between labor productivity and wages in social agriculture that we made on the basis of material published by the Central Statistical Administration and figures in the statistical yearbooks. Labor productivity is calculated in comparable prices for 1973 (see table 1).

It can be seen from this table that during the period 1976-1980 labor productivity growth per 1 percent increase in wages was the same as for 1956-1960: 0.43 for both kolkhozes and sovkhozes, 0.40 for kolkhozes alone and 0.36 for sovkhozes alone. Labor productivity growth rates were lower than wage increases by factors of 2.31, 2.52 and 2.75 respectively. As a result, expenditures from the wages fund per ruble of gross output in comparable prices increased at the kolkhozes and sovkhozes 40.1 percent, at the kolkhozes alone 45 percent, and at the sovkhozes alone 37 percent. For individual five-year plans these indicators differed slightly from the average figures for the 20-year period, but they also indicate steady increases in wages and inadequate labor productivity growth rates. In individual regions the lack of conformity between wage increases and labor productivity growth rates was even greater. These differences across the country's natural and economic zones represent a law-governed phenomenon that depends on very many factors. Among them, the main significance is found in production specialization and intensification on the basis of scientific and technical progress and efficiency in the use of land, material, water and manpower resources.

It should be noted that studies of labor productivity growth can also be made as comparisons with the dynamics and level not only of the nominal (monetary)

Table 1. Growth and the Relationship Between Labor Productivity and Wages per Worker on an Average Annual Basis in the Public Sector of Agriculture in the USSR.

Category	1956- 1960	1961- 1965	1966- 1970	1971- 1975	1976- 1980	1976-1980 as percentage of 1956-1960
KOLKHOZES and SOVKHOZES						
Labor productivity, rubles	1747	2210	2869	3487	3973	227.4
As percentage of preceding five-year plan	-	125.5	130.0	122.0	115.0	
Wages, rubles	377	576	879	1139	1487	394.4
As percentage of preceding five-year plan	-	152.8	152.6	129.6	130	-
Labor productivity growth per 1% of increase in wages	-	0.48	0.57	0.74	0.50	-
Labor costs per ruble of gross output (in kopecks)	26.8	32.4	38.1	40.5	37.0	140.1
KOLKHOZES						
Labor productivity, rubles	1559	1903	2484	3032	3461	222.0
As percentage of preceding five-year plan	-	122.0	130.5	122.1	114.0	-
Wages, rubles	320	478	789	1032	1308	408
As percentage of preceding five-year plan	-	149.4	165.1	126.9	126.0	-
Labor productivity growth per 1% of increase in wages	-	0.44	0.46	0.84	0.54	-
Labor costs per ruble of gross output (in kopecks)	25.6	31.4	39.7	41.1	37.0	145.0
SOVKHOZES						
Labor productivity, rubles	2793	2953	3620	4216	4655	166.7
As percentage of preceding five-year plan	-	105.7	122.6	116.4	111.0	
Wages, rubles	603	842	1070	1389	1716	284
As percentage of preceding five-year plan	-	139.6	127.0	129.8	123.5	-
Labor productivity growth per 1% increase in wages	-	0.1	0.9	0.58	0.44	-
Labor costs per ruble of gross output (in kopecks)	26.6	36.4	37	40.9	36.5	137.0

wage but also the real wage. In order to insure comparability this is important for periods when substantial changes occur in the retail price indexes for consumer goods. However, we did not do this because the state retail price indexes for all consumer goods in general during the period 1965-1980 changed only slightly. Whereas compared to the 1940 level they were 140 percent in 1965, in 1980 the figure was still only 143 percent, that is, there was an obvious stabilization of the retail price index, which indicates the absence of any gap between real and monetary wages. It is noteworthy that during this period the level of real incomes for kolkhoz farmers relative to the incomes of workers and employees, calculated per family member, rose from 75 percent in 1965 to 80 percent in 1970, and more than 90 percent in 1982. A marked equalizing process is taking place.

As noted above, a problem situation has arisen in agriculture, characterized by continued deviation from the general law-governed patterns in growth rates and the relationship between labor productivity and wages. As a result of this economic reality in the sector, material expenditures are growing, return from capital is declining, and wages costs per unit of gross output are increasing.

Our studies enable us to conclude that the situation that has been created, even though it has been maintained for a prolonged period, nevertheless has to do with a temporary phenomenon in agricultural economics. The development rates of production forces and the strengthening of the material-technical base of the entire agro-industrial complex envisaged by the Food Program are creating the conditions needed for preferential labor productivity growth compared to wages. Because of the dependence on natural forces and the features of socioeconomic progress in agriculture, deviations from the general law-governed pattern in development are seen more than in other sectors of material production.

This latter is explained by an important economic phenomenon: in agriculture, because of the adverse effect of weather conditions the laws of economy of time and labor productivity growth cannot always be tracked dynamically for each single year. Hence it follows that in individual years and periods a completely justified wage may outstrip labor productivity growth rates; and in years of severe drought this is in most cases inevitable since the entire aggregate of factors associated with the conditions and features of agricultural production exerts its effect mainly on the variable part of wages (additions and bonuses for output). But the constant part of wages (payment for completion of work, wage rates, salaries, additions) is guaranteed regardless of the weather conditions.

Thus, because of the aggregate of specific natural and economic conditions and features of agricultural production, labor productivity growth rates and wage increases will differ. Herein lies the objective need to apply differentiated norms at kolkhozes and sovkhoses for wages per unit of output, together with coefficients for the relationship and for preferential growth.

These methodological tenets are exceptionally important since growth and the relationship between labor productivity and wages are linked directly to many factors in economic and social development. In order to establish a substantiated relationship between these indicators it is essential to make comprehensive

use of the main factors of production intensification on the basis of scientific and technical progress.

In solving the problem of preferential labor productivity growth compared to wage increases an enormous role is now being played by the collective contract and effective internal cost accounting, the development of all factors in production and the use of reserves for labor productivity growth, including through improvements in production links with the sectors of the agro-industrial complex.

As an example of this the experience gained at the "Borets za kommunizm" kolkhoz in Morozovskiy rayon, Rostov Oblast, is worthy of attention. During the period 1981-1983 compared to 1976-1980, at that kolkhoz labor productivity grew 27 percent while wages increased 22 percent. The wage increase was 0.77 percent for each percentage point of labor productivity growth. During this period the farm increased the sale of output as follows: milk 34.2 percent, meat 16 percent, sunflower 24 percent, grain 4.4 percent. The level of profitability rose from 28.4 percent to 41.5 percent. The kolkhoz is engaged in extensive reproduction using its own accumulations, and extensive production and residential construction is in progress. In the most recent five-year plans 90 percent of the kolkhoz farmers' families have rebuilt housing containing three or four rooms with electric lighting, gas and water supplies, with garages and outside premises for individual cattle and poultry and with cellars for storing potatoes, vegetables and fruit. Within the system of the economic mechanism at the kolkhoz one important element is insuring high, preferential labor productivity growth rates over wage increases. This makes it possible to strengthen the wages fund for greater efficiency and production intensification at the kolkhoz and to coordinate wages closely with the final results of production in all the cost-accounting contract subdivisions.

In strengthening the link between wages and the results of labor and production ~~a~~ major role is played by additions for output, while bonuses for the production of above-plan output insure a link between actual output growth relative to the preceding period and to the plan level. This provides incentive for fulfillment and overfulfillment of plans and targets for the production of agricultural produce. At the same time the requirements for scientific substantiation for stepped-up plan targets have been made more stringent, taking into account all factors and reserves in the interests of insuring conformity between material incentive for the labor contribution of production collectives and individual workers to social production.

For planning economically justified relationships between labor productivity and wages growth rates at kolkhozes and sovkhoses what is needed first is an analysis of the level, growth rates and proportions of these indicators for a baseline period. After this it is necessary to determine what they should be within a plan period, and also to establish what factors and conditions will be of decisive significance here.

By using factor calculations on the basis of the baseline levels of the indicators considered it is possible to define labor productivity growth and wages growth and their plan levels, and also to calculate normatives for wage costs per unit

of value volume of gross output. One method for calculating labor productivity growth and wages growth per unit of output can be shown as follows:

$$H = \frac{3_{\pi}}{\pi_{\pi}} - \frac{3_b}{\pi_b} \times \frac{100 + 3_1 + 3_2 + \dots + 3_n}{100 + \pi_1 + \pi_2 + \dots + \pi_n}$$

where H is the normativ for wages costs per unit of physical volume of gross output (in rubles); 3_{π} and 3_b are the average annual wages per worker engaged in agricultural production (in rubles) during the plan period and the baseline period; π_{π} and π_b are the level of labor productivity in the plan period and the baseline period (production of gross output calculated on an average annual basis per worker engaged in agricultural production; in rubles); $3_1 + 3_2 \dots 3_n$ are the coefficients of change in the level of wages in the plan period, using the factors considered; and $\pi_1 + \pi_2 + \dots + \pi_n$ are the coefficients of change in the level of labor productivity in the plan period according to the factors considered.

When making practical use of the proposed method for determining the relationship on the basis of consolidated factors for labor productivity growth and wage growth it is advisable to supplement it with calculations of the planning-normativ wages expenditures per quintal of specific kinds of produce. These planning-normativ costs should be included in the process charts for the production of products and for the cost-accounting tasks of the subdivisions. Comparison of these indicators with actual indicators for the preplan period will provide an opportunity for determining the trend in changes in the relationship between labor productivity and wages in terms both of individual products and in general for all agricultural output. It is also important to compare the dynamics of wage fund expenditures and labor costs calculated per quintal of output, and to analyze deviations in the movement of those indicators. Comparison of the figures obtained with those calculated from the consolidated factors makes it possible to substantiate growth and the relationship between labor productivity and wages more correctly.

A solution to the problem of establishing optimal proportions between these indicators can be found by means of determining the plan normativs for expenditures of wages per unit of gross output. Comparison of these expenditures in the plan period and the baseline period will indicate any improvement, stabilization or deterioration in the indicators for growth and the relationship between labor productivity and wages.

In addition to determining the specific wage expenditures per unit of gross output it is also necessary to calculate the coefficient of relationship using the method of the proportions of increase [prirost] or growth [rost].

The coefficient of relationship using the method of proportions of increase is determined by the relationship of increase (as a percentage) in the average wage to increase (as a percentage) in labor productivity. This method makes it possible to determine what percentage of a wage increase is made per 1 percentage point of labor productivity increase.

Determination of the coefficient of relationship using the method of proportions of growth consists methodologically of dividing the percentage of wage growth by the percentage of labor productivity growth.

It is advisable to use the coefficient of relationship derived from the method of proportions of growth in cases where actual and plan indicators relative to the baseline indicator are 100 percent or less, that is, when there is no increase in the indicators and it becomes impossible in fact to apply an index for the method of proportions of increase.

The mechanism for economic regulation of labor productivity and wage rate growth at kolkhozes and sovkhozes should also include an indicator characterizing the limit for the optimal relationship between these values. For agricultural conditions this indicator can be the coefficient for preferential growth, derived from the relationship between the coefficient for labor productivity growth and the coefficient for wages growth. When this indicator is greater than unity it indicates a preferential growth for labor productivity relative to wages. In cases where the coefficient of preferential growth is greater than or equal to the coefficient for wages growth, an optimal relationship exists between labor productivity growth and wages. In this case the percentage of wages growth is not outstripping the percentage of reduced wages costs per ruble of gross output. Studies have shown that this kind of economic result is obtained in those cases where labor productivity growth is running at about twice the rate of wage growth, that is, when the coefficient of relationship derived from the increase method equals about 0.5.

The entire multilevel mechanism to provide material incentive for the labor of agricultural workers has now been significantly improved. One important stage in this has been the decisions of the 26th CPSU Congress and subsequent CPSU Central Committee plenums, and also the decrees and normative acts adopted following them. Accordingly, given the skillful and creative use of the growing production resources, the existing wage systems and the extended rights of kolkhoz farmers and sovkhoz workers in production planning and economic incentive, it is possible to achieve further wage increases while increasing labor productivity growth at preferential rates.

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EDUCATION

STATISTICAL DATA ON USSR VOCATIONAL EDUCATION

Moscow VESTNIK STATISTIKI in Russian No 7, Jul 84 pp 54-58

[Article: "Secondary Vocational Education in the USSR"]

[Text] One of the chief tasks of secondary vocational educational institutions is the constant improvement in the quality of specialized training, taking into account the requirements of modern production, science, technology and culture and the prospects for their development.

("Foundations of USSR and Union Republic Legislation on National Education")

In accordance with the basic directions of reform in general education and vocational schools, an important role in the training of youth belongs to the secondary vocational educational institutions (tekhnikums, pedagogical and medical schools, etc.). They train qualified specialists and organizers for the primary links of production, public health, culture and sphere of services; they replenish the ranks of the most numerous detachment of specialists in the national economy and, at the same time, they participate in the resolution of tasks in general secondary education.

Table 1. Secondary Vocational Educational Institutions According to Union Republic at the Beginning of the 1983/84 School Year

	Number of Secondary Vocational Educational Institutions	Number of Students in Thousands		Number of Those Studying in Divisions		
		Overall	Including those in Main Departments	Day	Evening	External
USSR	4,438	4503.0	1873.1	2837.3	451.8	1213.9
RSFSR	2,528	2508.9	1075.1	1522.5	289.9	696.5
Ukrainian SSR	729	803.6	355.4	508.5	79.5	215.6
Belorussian SSR	138	161.3	73.3	108.1	12.3	40.9
Uzbek SSR	238	261.7	65.4	170.9	20.8	70.0
Kazakh SSR	242	276.0	106.2	181.5	13.3	81.2
Georgian SSR	91	53.5	16.5	43.4	1.6	8.5
Azerbaijan SSR	76	78.5	16.3	47.6	13.0	17.9
Lithuanian SSR	67	63.4	32.9	47.1	5.0	11.3
Moldavian SSR	52	59.1	29.7	42.1	1.5	15.5
Latvian SSR	56	40.5	25.6	28.9	2.7	8.9
Kirghiz SSR	45	51.4	22.6	35.9	3.4	12.1
Tajik SSR	38	38.7	13.6	27.9	1.8	9.0
Armenian SSR	66	47.9	12.3	33.6	3.3	11.0
Turkmen SSR	35	35.7	16.1	23.9	2.3	9.5
Estonian SSR	37	22.8	12.1	15.4	1.4	6.0

Among those being trained in secondary vocational educational institutions, 42 percent comprise individuals who are receiving general secondary education along with their trade.

Table 2. Admissions to Secondary Vocational Educational Institutions According to Union Republic (in thousands of people)

	1970	1975	1980	1983
USSR	1378.4	1403.9	1457.0	1489.7
RSFSR	780.4	816.3	817.6	816.5
Ukrainian SSR	241.0	245.4	253.3	264.7
Belorussian SSR	45.4	49.3	52.5	52.7
Uzbek SSR	58.2	67.3	86.2	97.7
Kazakh SSR	69.5	73.6	89.3	95.7
Georgian SSR	17.3	16.9	18.1	18.6
Azerbaijan SSR	24.6	25.6	25.6	25.5
Lithuanian SSR	20.3	21.0	21.0	20.3
Moldavian SSR	16.1	17.5	18.2	18.8
Latvian SSR	11.0	12.3	12.6	12.8
Kirghiz SSR	12.6	13.4	15.7	17.2
Tajik SSR	11.7	12.2	13.3	13.6
Armenian SSR	15.2	16.7	15.9	16.4
Turkmen SSR	8.7	9.4	10.8	12.2
Estonian SSR	6.4	7.2	6.9	7.0

Table 3. Specialists Graduating from Secondary Vocational Educational Institutions According to Union Republic (thousands of people)

	1970	1975	1980	1983
USSR	1033.3	1157.0	1274.7	1265.6
RSFSR	595.5	667.2	720.7	690.2
Ukrainian SSR	209.5	220.8	232.2	232.3
Belorussian SSR	36.0	41.5	47.4	46.5
Uzbek SSR	41.4	51.0	63.9	74.1
Kazakh SSR	48.0	57.5	70.3	78.9
Georgian SSR	13.5	14.7	16.3	15.7
Azerbaijan SSR	18.1	19.0	22.6	24.4
Lithuanian SSR	13.0	16.3	19.3	18.2
Moldavian SSR	11.8	13.4	17.0	17.1
Latvian SSR	8.7	9.4	10.8	10.7
Kirghiz SSR	9.3	10.3	12.5	14.0
Tajik SSR	7.8	9.5	11.0	11.7
Armenian SSR	9.6	13.8	16.2	15.9
Turkmen SSR	6.3	7.1	8.7	10.0
Estonian SSR	4.8	5.5	5.8	5.9

The country's national economy is replenished from year to year with a significant number of diplomaed specialists. From 1971 to 1983, secondary vocational educational institutions trained 15.5 million specialists, which comprises 51 percent of the overall number of graduates during all the years of Soviet power.

Table 4. Technical Specialists Graduating from Secondary Vocational Educational Institutions, According to Groups of Specialties (thousands of people)

	1970	1975	1980	1983
Overall in technical specialties including the following groups of technical specialties:	519.2	600.3	646.2	623.6
Geology and prospecting for deposits of useful minerals	4.8	5.7	5.4	5.3
Exploitation of useful mineral deposits	11.7	13.1	10.9	11.3
Energetics	44.8	47.7	44.7	44.2
Metallurgy	10.2	10.9	11.9	11.9
Machine building and instrument building	124.0	125.6	132.1	125.8
Electrical machine building and electrical instrument building	31.8	33.8	36.7	36.1
Radio engineering and communications	30.9	31.6	36.2	35.6
Chemical technology	23.3	19.0	18.5	18.3
Timber engineering and timber, cellulose and paper technology	8.5	10.6	11.8	10.7
Foodstuffs technology	28.8	39.5	44.3	45.3
Consumer goods technology	24.7	24.8	27.6	28.6
Construction	61.9	99.8	102.9	93.3
Geodesy and cartography	1.5	2.8	3.6	3.4
Hydrology and meteorology	1.7	1.6	1.7	1.4
Land tenure	0.7	1.1	1.2	1.1
Agricultural mechanization	32.4	42.6	50.1	49.3
Agricultural electrification	7.1	9.4	10.1	9.1
Hydraulic land reclamation	7.0	8.5	6.7	7.6
Forestry	4.7	6.4	8.6	6.1
Mechanization of hydraulic land reclamation	2.0	2.4	3.2	3.2
Mechanization and electrification of animal husbandry	1.1	3.0	5.4	5.6
Transport	55.6	60.4	72.6	70.4

The training of technicians for industry, construction, transport, communications and agriculture occupies a special place in the training of personnel with secondary vocational education. In 1983, as compared with 1970, the number of graduating diplomaed technicians increased by 20 percent.

Table 5. Teaching Personnel in Secondary Vocational Educational Institutions (at the beginning of the school year)

	1970/71	1975/76	1980/81	1982/83
Overall, in thousands	252.4	279.2	292.8	294.2
Including permanent staff teachers of this number, those with higher education:	182.8	218.4	232.3	233.9
in thousands	158.8	195.5	214.2	217.8
in percent	87	90	92	93

Table 6. Students in Secondary Vocational Educational Institutions in the USSR Receiving Stipends (at the beginning of the school year; in percent)

1970/71.....	68
1975/76.....	72
1980/81.....	75
1983/84.....	75

Education is free in the USSR. Most students in the day divisions of secondary vocational educational institutions receive stipends; 172,000 of these individuals receive them from enterprises, construction projects, sovkhoses, kolkhozes and other organizations.

Students in secondary vocational educational institutions who are studying without discontinuing work have the right to additional vacation from the workplace, reduction of the work week and other privileges.

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EDUCATION

BENEFITS FOR WORKERS ATTENDING SCHOOL AFTER-HOURS DETAILED

Moscow UCHITEL'SKAYA GAZETA in Russian 2, 4, 7, 9, 14 Aug 84 p 4

[Article by M. Kurilin, lawyer: "Benefits for Students and Workers"]

[2 Aug 84 p 4]

[Text] Dear Editors!

What benefits have been established by law for those who work and study and what acts regulated the granting of these benefits?

I. Kiselev, Moscow

For the purpose of creating most favorable conditions for workers and employees work with study at educational institutions, various benefits have been established for them. Until now, they have been reflected in various normative acts.

In connection with the publication of the USSR Code of Laws, the USSR Council of Ministers approved on 24 December 1982 the Statute on Benefits for Workers and Employees Combining Work with Study at Educational Institutions (USSR Collection of Decrees, No 4, 1983). It provides benefits for workers and employees successfully studying without separation from production at secondary general educational evening (shift) and correspondence schools, at evening (shift) vocational and technical educational institutions, at evening (shift) divisions (in groups) attached to day vocational and technical educational institutions, at preparatory divisions attached to higher educational institutions and at higher and secondary specialized educational institutions for evening and correspondence forms of study.

In the Statute, a number of benefits formerly established for individual categories of students have been applied to a broad circle of blue and white collar workers, and the procedure of granting them has been made more precise.

Among general benefits applying to all workers and employees regardless of at what educational institutions they are studying, managements of enterprises, insitutions and organizations are given the duty to workers and employees the

necessary conditions for combining work with study, providing them assistance in mastering vocational knowledge and skills, allotting places for production practice and opportunely offering benefits established by the legislation.

When setting advanced training grades or promotion at work, managements of enterprises should take into consideration the general-educational background of workers and employees and the attainment of a higher or secondary specialized education by them and also implement measures for the most advantageous use of persons studying while employed, in conformity with their skills and education.

A new benefit is designated in point 4 of the Statute where it is pointed out that when granting annual vacations to workers and employees studying at educational institutions while still employed, managements of enterprises, institutions and organizations are obligated to coordinate these vacations on their request with the time for attending mandatory orientation sessions, performing laboratory work, taking tests or examinations at an educational institution. This benefit formerly was established only for workers and employees studying at secondary general educational evening schools. Now workers and employees studying at VUZ's and tehnikums in evening or correspondence forms of study may be granted annual vacations on their request even in the first year of work prior to expiration of 11 months.

As for workers and employees studying at general educational evening (shift) and correspondence schools, annual vacations may be granted on their wish with the consideration that they be used prior to the start of study classes in the schools.

[4 Aug 84 p 4]

[Text] What specific benefits do workers and employees have who combine work with study at general educational schools and vocational and technical schools?

The Statute on Benefits granted in connection with study at secondary general educational schools and vocational and technical educational institutions specifies that legislation forbids engagement in overtime work on days of classes of workers and employees who work while studying at secondary general educational evening (shift) and correspondence schools and at evening (shift) vocational and technical educational institutions.

For persons studying at secondary general educational evening (shift) and correspondence schools, a shortened work week is arranged for the period of the school year: at schools of working youth--by 1 workday or a number of work hours corresponding to it (with reduction of the workday during the course of the week) and at schools of rural youth--by 2 workdays or the number of work hours corresponding to them (with reduction of the workday during the course of the week).

The indicated persons are released from work during the course of the school year for not more than 36 workdays in the case of a 6-day work week or for the number of work hours corresponding to them.

For the time of release from work, they are paid 50 percent of average pay at the basic place of work but not more than the prescribed minimum amount of earnings.

In some cases where because of production conditions (seasonal, mobile character of work and the like) persons studying at secondary general educational evening (shift) and correspondence schools are unable to make use of free days, heads of enterprises, institutions and organizations may grant them days off from work in combined form (in place of weekly granting of these days) during the interseasonal period or during another period of least employment at production but not in excess of 36 workdays.

Heads of enterprises, institutions and organizations in some cases may grant 1-2 days a week off from work without pay during the period of the school year without detriment to production activity on their request to workers and employees studying at secondary general educational evening (shift) and correspondence schools.

Workers and employees studying at secondary general educational evening (shift) and correspondence schools are granted for the period of final examinations in the 9th-year class additional leave of 20 workdays in duration and in the 8th-year class--8 workdays with retention of pay at basic place of work computed according to the wage rate or salary.

Workers and employees studying in 5th-year, 6th-year, 7th-year, 9th-year and 10th-year classes of the said schools are granted for the time of taking advanced placement tests from 4 to 6 days free from work with retention of average pay at basic place of work, but in this case those 36 workdays which are granted to a worker in the course of the school year are reduced by the corresponding number of days.

Persons permitted to take examinations for external studies at an 8-year school are granted an additional leave of 15 workdays' duration and examinations for a certificate of secondary education--20 workdays with retention of average pay at basic place of work.

Workers studying at evening (shift) vocational and technical schools, in evening-shift divisions (in groups) attached to day vocational and technical educational institutions are granted additional leave of 30 workdays for preparing and taking examinations in the course of a year with retention for that time of 50 percent of average earnings at basic place of work but no lower than the prescribed minimum size of pay.

[7 Aug 84 p 4]

[Text] What benefits are granted to persons entering and studying without separation from production at VUZ's, tekhnikums andat preparatory divisions attached to higher educational institutions?

Workers and employees permitted to take entrance examinations for admission to higher educational institutions are granted leave without pay lasting 15 calendar days and to secondary specialized educational institutions--10 calendar days, not counting travel time to location of educational institution and back.

In the employment of this benefit, the question frequently arises: could such leave be granted to workers entering an educational institution not for the first time? In practice, this question is resolved positively in the case of availability of information from the educational institution on admission to entrance examinations to the educational institution.

Those who study at preparatory divisions attached to higher educational institutions while employed, are granted during the period of the school year on their request one day free from work per week without pay.

For taking entrance examinations, they are granted additional leave without pay of 15 calendar days' duration, not counting travel time to location of educational institution and back.

Workers and employees studying in evening and correspondence forms of education at higher and secondary specialized educational institutions are granted yearly additional leave: for the period of mandatory orientation studies, performance of laboratory work, taking of tests and examinations of first- and second-year courses of higher educational institutions--20 calendar days; at third-year and subsequent courses--30 calendar days and for students of secondary specialized educational institutions--10 and 20 calendar days, respectively.

Workers and employees studying in the correspondence form of education at higher and secondary specialized educational institutions are granted each year additional leaves of absence: for the period of mandatory orientation sessions, performance of laboratory work and taking of tests and examinations in first-year and second-year courses--30 calendar days and in third-year and subsequent courses--40 calendar days.

It should be pointed out that the list of measures for participation in which additional leaves of absence are granted (for performance of laboratory work, taking of tests and examinations) in the new Statute includes the mandatory orientation sessions for the first time. Such studies are stipulated by the program of the educational institutions and are included in teaching plans for the purpose of providing aid to students and pupils in their independent work. However, the additional leave for the period of the mandatory sessions is

granted to students and pupils to the account of the total length of leave established for the performance of laboratory work and taking of tests and examinations.

[9 Aug 84 p 4]

[Text] What benefits are granted to evening (correspondence) students for the period of taking state examinations and preparation of their thesis?

For workers and employees studying in the evening and correspondence forms of study during the 10 school months prior to starting work on the thesis (project) or taking state examinations are granted for the purpose of preparing for classes in the case of a 6-day work week 1 day a week off from work with pay in the amount of 50 percent of average earnings at the basic place of work, but no less than the prescribed minimum pay size. In the case of a 5-day work week, the number of days off from work is calculated on the basis of the length of the work shift with retention of the number of hours off from work.

It is not permitted to combine together the said days or to reduce their number or to reduce the size of pay through the means of this reduction (for example, to grant in place of 4 days two days per month with pay in the amount of 100 percent of average earnings) or also to combine them with annual leave.

On the request of a person who is studying, management may grant without pay an additional one-two days off from work a week.

If the conditions of production do not provide such a possibility, then the work does not have the right to demand it.

For the period of taking state examinations, workers and employees studying at higher and secondary specialized institutions are granted additional leave of 30 calendar days' duration. For the period of preparing for and defending a thesis (project), workers and employees studying at higher educational institutions are granted additional leave of 4 months' duration, while those studying at secondary specialized educational institutions are granted 2 months.

Moreover, heads of enterprises, institutions and organizations, taking into account production conditions, on the recommendation and request of the corresponding educational institutions may grant workers and employees taking final courses at the higher and secondary specialized educational institutions an additional month without curtailment of pay for the purpose of familiarization directly at production of work in the chosen specialty and preparation of materials for the thesis. For this period the said category of students is receives a stipend in the amount set for students taking the final course of the corresponding educational institution in the day form of study.

[14 Aug 84 p 4]

[Text] What is the procedure of arranging and granting additional educational leaves of absence for taking tests and examinations?

The right to additional educational leave is connected with successful completion by workers of their study commitments. This right is enjoyed by all workers and employees regardless of length of work at a given enterprise.

Travel time to location of the educational institution and back is not included in leave time. For this time leave without pay is granted.

Educational leaves of absence must be arranged and paid for in advance of the worker's trip for taking tests and examinations.

Leave in connection with education depending on the plan of studies may also be used in partial form. But its total duration must not exceed the time prescribed by law for a given session.

The basis for granting of leave is a summons or notice from an educational institution which indicates the beginning and end of a session as well as length of leave.

In the case of coincidence of leave in connection with study with the annual vacation, the latter on the basis of a preliminary agreement of the worker with management is carried over. If a worker or employee has taken examinations, tests or other tasks according to the teaching plan of the current session in time off from work or during the period of annual vacation without preliminary arrangement of its carry-over, then leave in connection with study is not granted for the past session.

This is explained by the fact that the said educational leaves of absence have a strict designation of purpose, that is, they are granted only for taking examinations, tests or defense of a thesis. If a worker takes examinations or tests prior to the end of the educational leave, he is obliged to discontinue the leave and go back to work. Persons utilizing educational leave for their own purposes after taking examinations can incur a disciplinary penalty for violation of labor discipline.

Instances are possible where a worker becomes ill in the period of an educational leave. In the case where the illness interfered with taking examinations, the worker lets this be known to the educational institution and the enterprise where he works and the examinations are shifted to another time period for him. For this time period, the part of the educational leave not used because of the illness is transferred. For the period of illness, the worker is issued an allowance for the temporary labor incapacitation on general grounds, while the carried-over portion of the leave is not paid, since the pay for the time of the leave has been already paid out.

The duration of leaves of absence is determined according to the school (rather than the calendar) year. For this reason a worker may obtain educational leave during the course of the calendar year which may be greater or smaller than the prescribed educational leave depending on the time of taking tests and examinations.

The amount of earnings retained for the time of leaves of absence concerning which mentioned was made above is determined on the basis of calculation of average monthly earnings for the past 12 months of work prior to the leave and must not exceed 100 rubles a month for students of higher educational institutions and 80 rubles a month for pupils of secondary specialized institutions. Consequently, if their average monthly earnings do not exceed 100 and 80 rubles respectively, the computation is made in the usual manner: average monthly earnings are divided by 25.4 and the obtained average monthly earnings are multiplied by the number of workdays of the leave. If, however, the average monthly earnings exceed 100 and 80 rubles, further calculation is made on the basis of this marginal sum and not on the basis of the actual average monthly earnings.

The earnings retained during the additional educational leaves of absence for workers of regions of the Far North or similar locations, are computed within the limits of 100 (80) rubles per month, including additional pay according to regional coefficients and northern allowances.

Travel to where the educational institution is located and back by students of higher and secondary specialized educational institutions and those undertaking a correspondence form of education for installation studies, travel to attend mandatory orientation sessions, for performance of laboratory work and for taking tests and examinations is paid once a year from funds of enterprises, institutions and organizations where they work in an amount of 50 percent of the cost of the trip on appropriate means of transport, and according to the procedure established by legislation concerning official business trips.

The payment for a trip for the purpose of preparing and defending a thesis (project) or taking state examinations is in the same amount.

Workers and employees studying via the correspondence form of education at higher and secondary specialized educational institutions, are provided with dormitory facilities by request for the time of preparation and defense of theses and taking of state examinations.

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DEMOGRAPHY

SPECIAL DEMOGRAPHIC DEPARTMENT SET UP AT MSU

Moscow EKONOMICHESKIYE NAUKI in Russian No 7, Jul 84 pp 125-128

[Article by N. Sazonova, candidate of economic sciences: "School for the Retraining of Demographic Cadres at Moscow State University"]

[Text] There is general recognition of the growing importance of demographic problems in present-day socioeconomic development. The CPSU and the Soviet government are carrying out an effective demographic policy, viewing it as a component part of the party's overall socioeconomic policy.

The complete study and use of the factors and underlying laws in the development of our country's population in planning for the long-term period is an important condition for the scientific substantiation of the national-economic plans and the effectiveness of the functioning of the entire social organism. At the June 1983 Plenum of the CPSU Central Committee it was emphasized that, when developing economic plans, it is necessary, among the most important factors in the development of society, to take complete consideration also of the demographic factors. All this makes growing demands upon the cadres of demographic specialists both on the part of their number, and from positions of the level of training for the resolution of present-day responsible tasks.

There is a vital need for the serious and broad retraining of specialists with higher education in the field of demography, and, moreover, the providing of a definite amount of basic knowledge in this area to specialists who are resolving various problems in the planning of the national economy and culture. At the present time this work is being conducted on an unjustifiably limited scale and with the aid of various, and frequently casually developed, forms -- by means of the use of the mass-information media, and also decentralized methods of individual or brigade instruction, which evolves from the current needs of individual departments, institutions, or enterprises. There is no need to prove that this kind of organization of the job at hand does not guarantee either the required effect or the planned redistribution of cadres among the branches and economic regions in those instances this need arises. Hence it follows that the time has come to create new organizational forms for the retraining of specialists in the area of demography, which correspond to the requirements of the time. It is also necessary to proceed from the fact that the demographer must have a broad socioeconomic education.

At the same time, a definite demographic education must be given to everyone who dedicates himself to the social, and especially the economic, sciences in their entire broad range.

The intensification of the attention to the developing demographic science, and the increase in the demands made for the more complete use of the results of theoretical research in the practical situation have presented the need to create at MGU [Moscow State University -- hereinafter MSU] a special school [facul'tet] to retrain demographers in a broad area of specialization on the base of the Center for the Study of Population Problems. The task of the new school is the retraining of specialists (administrative cadres, workers at executive committees of the Soviets of People's Deputies, ministries and departments, and scientific associates in the field of demography). Special attention will be devoted to the methods of conducting a demographic analysis in territorial and branch planning, and in the administration of the development of the social infrastructure, and to such social problems as the raising of the standard of living, the improvement of working conditions, family management, the protection of health, and urban improvement.

The new form of the retraining of cadres makes it possible to combine harmoniously the active production participation of the specialists with the acquisition of the knowledge that they need in their work.

What, then, differentiates the system of retraining the cadres with regard to the new, promising areas of science and technology from the practice of specialist refresher training that is widely developed throughout our country?

We shall mention only the most essential, the most important features. Whereas the refresher schools and institutes were called upon to guarantee the regular renewal of the knowledge acquired by specialists in a definite area of specialization, who received their education at one time in the appropriate institutions of higher learning, the special schools organize retraining in new, promising areas of science and technology. In other words, the students must acquire knowledge in definite specialities in which, for the time being, the educational institutions are not carrying out the training of cadres for the national economy, or are carrying it out in insufficient volumes.

Therefore, one of the peculiarities of the system of refresher training for specialists lies in the brevity of the instruction, whereas the students attend the special school for a period of six months to two years.

It must be said that the curricula at the special school also differ fundamentally from the curricula at the corresponding schools. The basic emphasis at the special school is placed upon the study of problem-oriented questions that are linked with the resolution of the tasks of increasing the efficiency of production and the quality of the work. In addition, the students at the special school study disciplines which are not taught to the students at higher educational institutions.

The Center for the Study of Population Problems, of MSU's School of Economics, is now the principal base not only for the training, but also the retraining of cadres specializing in demography at Moscow University. The center (which

includes the Population Department [kafedral], which is the lead subdivision; and the Problem Laboratory) is a scientific-training association that combines research, instructional, and coordinating activity. Its basic tasks are research in the vitally important problems of population and the training of highly qualified specialists.

In the theoretical and applied research being conducted at the center, special attention is devoted to the questions of the theory and policy of population; to the methodological principles of the comprehensive program for the population of the country and regions; to the natural laws underlying the development of the family and the demographic behavior of the population of the USSR; to the opportunities for managing them; and to the ways to form a uniform system of populated places and their social and demographic development in the long-term view. Taking into consideration the long-term nature of demographic changes, the center has concentrated its basic attention on the problems of scientific practice which are linked with the development and substantiation of specific socio-demographic measures at various levels of administration, as closely interrelated with the need to resolve the tasks of the national economy.

Many theoretical and methodological problems of population which were developed by the scientific collective at the center were made the basis of the school's curriculum for the retraining of specialists in demography. That curriculum was formed with a consideration of the tasks that were assigned to demographic scientists at the party's 26th Congress and at subsequent plenums of the CPSU Central Committee. The tasks that are being discussed were put into concrete form in the decisions of USSR Gosplan, USSR GKNT [State Committee for Science and Technology], USSR Academy of Sciences, and USSR Minvuz [Ministry of Higher and Secondary Specialized Education] with regard to very important areas of scientific research in the 11th Five-Year Plan.

When preparing the curriculum, special attention was devoted to the fundamental disciplines, and consideration was taken of the need for the complete study of the problems of population for the effective administration of the demographic processes.

When developing the curriculum for the special school, the associates at the center proceeded from the principle to the effect that demography at the present time has become a system of scientific knowledge and instructional disciplines. Therefore the instructional course opens with the program "System of Knowledge Concerning Population," which expounds the basic problems in the methodology and Marxist-Leninist analysis of the natural laws underlying the development of population. The disciplines that form the basis of the instructional course are "Demography," "Economics of Labor Resources," "Economic and Social Planning," "Demographic Policy," "Economics of Population," "Planning of Social Development and the Raising of the National Standard of Living," and "Urbanization and Population Dispersal."

In the course of the half-year period of instruction (see Note [at end of translation]), the students in the special school will also be taught a series of disciplines in the methodology of analyzing demographic phenomena, including: "Mathematical Methods of Analyzing Demographic Phenomena," "Sources

of Data on Population", "Methodology of Demographic Forecasting," "Methodology and Practice of Conducting Sociological and Demographic Research," "Target-Program Methods in Planning and Administration," etc. Consideration has also been taken of the fact that the comprehensive analysis of related problems in the development of population requires the modern specialist to have a knowledge of the basic methodological and methodical principles in disciplines that are related to demography, such as population geography, social psychology, family law, and a number of others.

With a consideration of the prospects for the students' practical activities, they will be offered a choice of a number of special courses dealing with the most vitally important problems in population. The specialists must have an idea of the broad series of questions of economic demography, demographic forecasting, dispersal and urbanization, population ecology, social hygiene, and the organization of public health. What is provided is not only a survey and analysis of the facts, but also well-argued criticism -- conducted from Marxist-Leninist positions -- of the bourgeois conceptions of population problems. The importance of the ideological struggle in this area is constantly growing. One can state without exaggeration that demography is one of the frontline sectors in the struggle between the two political philosophies.

During the period of instruction, special practical sessions in applied demography will be conducted, within the framework of which the students, having been subdivided into subgroups (according to their professional interests) will consider the specific problems encountered in their practical activity. For example, the curriculum provides not only for the conducting of theoretical classes, but also the fulfillment of a large volume of practical projects involving the computation of demographic indicators.

The population problems which have recently formed in our country are manifesting them in many different ways. The correct understanding of them requires the study of the demographic processes occurring not only in our country as a whole, but also in its individual regions, and this principle is receiving broad reflection when organizing the retraining of demographic specialists. That retraining is designed in such a way that the improvement of the theoretical knowledge leads to the development and skillful practical implementation of scientifically substantiated recommendations.

The transition to practical recommendations on the basis of theory is a complicated factor in instruction. It is planned to acquaint the students in the special school broadly with the latest achievements of demographic science, as closely tied in which the development of recommendations pertaining to measures of effective demographic policy.

A very important peculiarity of the new school lies in the fact that it was created at MSU, our country's oldest institution of higher learning and a leading institution, one that has a tremendous amount of experience in the organic combination of the instructional and scientific processes. Therefore the curriculum at the special school for demography stipulates, in addition to lecture and practical classes, the familiarization of the students with the scientific research that is being conducted at the departments and in the

laboratories of the university, which research is headed by major scientists. At the same time the school's activity exerts a definite influence upon the organization and the content of the research being carried out by the university's scientists in the field of demography. For example, the scientific associates at the Center for the Study of Population Problems who are broadly involved in instruction also consider in the individual plans for their scientific-research projects the needs of the newly created special school. In particular, this pertains to the preparation of teaching aids; the guidance of graduation projects for which the subject matter will be constructed with a consideration of the needs of the organizations and enterprises that have sent their specialists for the retraining. The questions that will be selected as the topics for a graduation project will be the most vitally important questions of demographic planning. They will be fulfilled on the basis of materials pertaining to those organizations where the students in the special school are working, with the skilled assistance of scientific directors from Moscow University. This will enable the students for formulate specific recommendations with regard to the vitally important topics at a high theoretical level. It is assumed that the results of 25 percent of these projects will be recommended for practical introduction. This, obviously, increases considerably the responsibility borne both by the originators of those projects and by their scientific directors. Provision has also been made for the direct participation of the students in the resolution of a number of problems being developed by the scientists at the Population Center. These problems include the regional peculiarities of the organization of the population; its mechanical movement throughout the country; and the social and demographic description of small cities.

The school trains highly qualified specialists who have mastered the principles of Marxist-Leninist theory concerning population and modern methods of conducting demographic analysis and forecasting, specialists who know how to conduct sessions of demographic experts that deal with socioeconomic programs and the total array of tendencies that have formed in the development of the population of the USSR and foreign countries, and how to substantiate the measures for implementing the planning decisions relative to the formation of human resources.

After the completion of their instruction, the graduates of the MSU special school for demography, on the basis of their knowledge of the theoretical principles of the development of the population and the principles of demographic analysis, are supposed to know how to do the following: evaluate the nature and consequences of the demographic situation that has developed; prepare long-term comprehensive forecasts of population development and determine the nature of the influence that changes in the population reproduction process have upon the socioeconomic processes; substantiate the measures that are aimed at implementing the planning decisions with regard to the formation of labor resources and the optimizing of the demographic processes; develop programs for demographic policy for various administrative-territorial units, and the demographic sections in the programs and plans for socioeconomic development; participate in the conducting of social and demographic research and take consideration of their results when assigning personnel and planning the increase in the worker's labor productivity and the raising of his proficiency level; and give expert evaluations of the

demographic situation that has developed in the country or in the particular region, and the possible long-term consequences of changing it.

In order to carry out the effective work of the special school for the retraining of the cadres in demography it is necessary to fulfill a number of conditions: to prepare a well thought-out, well-tested curriculum that defines the content of the entire course of instruction; to produce teaching aids that have been tested in the practical situation; and to get additional personnel by involving highly skilled instructors in the work in the school.

The Population Department plans to invite, for the purpose of giving special courses, small lecture series, and individual lectures, the leading specialists in the departments and planning and other agencies of Moscow, the scientific-research institutes of the academies and departments, instructors at institutions of higher learning, and scientists from the countries in the socialist community.

The implementation of these conditions will make it possible by 1985 for the first group of specialists graduated by the school to employ their demographic knowledge in the practical situation.

The retraining of specialists in new, promising areas of science and technology is a matter of great national importance and that, to no small degree, will determine the further successes of the entire national economy.

NOTE

The complexity of the curriculum at the special school of demography is one of the factors necessitating the full-time instruction of the students. The instruction period of six months, the educational and age requirements, the material support and benefits are stipulated on the basis of the appropriate decrees that are in existence as a result of governmental decisions. During the school year, one recruitment is carried out (one school year is conducted). The students' weekly work load, including their lecture and practical classes, as well as the work in the laboratory and at seminars, comes to 30 hours; during the course of the week, the students are granted one free day to visit the library. The instruction ends with the taking of examinations and quizzes, and the defending of a graduation project (book review) that has been carried out under the guidance of an instructor or a scientific associate from the Center for the Study of Population Problems who has been assigned to each student upon enrollment. After the successful completion of the instruction and the passing of the quizzes and examinations, the graduate of the special school is awarded the appropriate diploma.

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DEMOGRAPHY

TERRITORIAL PRODUCTION COMPLEX POPULATION MODELS DRAWN UP

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 4, Jul-Aug 84
pp 663-674

[Article by L.I. Sevast'yanov, Novosibirsk: "Territorial Planning and Management. Modeling Population Settlement in a Territorial-Production Complex"]

[Text] Territorial-production complexes [TPK] are formed in order to resolve (or help to resolve) one or several major national economic problems [1, p 20; 2, p 33] that in many cases are associated with organizing the use of natural resources on economically poorly developed territories with sparse populations. The organization of a TPK leads to significant shifts in the location of production facilities and population, and to the development and consolidation of the resettlement base framework [3, pp 105-125; 4, pp 224-251].

Construction plays an important role in the development of production and the services sphere in a TPK. During the initial stages construction workers make up most of the population. The numerical strength of construction workers participating in the erection of projects for several production facilities, as for example in hydroelectric power engineering, exceeds that of the operators. As the construction program is completed the requirements for construction capacities decline and, after the work to develop entire projects, a transportation network, an energy base and the utilities services and to construct cities and settlements has been completed, they contract to the sizes necessary to support production at a certain level, carry out small volumes of city construction in accordance with the rates of natural population growth and tasks to improve living conditions and raise the level of cultural and everyday services, and also to make capital repairs and reequip production and nonproduction fixed capital. The relatively short-lived nature of the decisive role of construction in the formation of a TPK exerts a marked influence on the spatial structure of production and the system of settlement.

In complexes with a predominance of the extraction industries a factor such as the limited nature of mineral reserves at individual deposits exerts a significant effect on the development and location of production and services sphere projects. Because of this, questions of the spatial structure of production and the formation of settlement networks are resolved with due consideration of the duration of the urban development functions of each of the projects for the extraction industry and the opportunities for settling

project workers in one or several (but not at every deposit or other project) settlements and organizations of the corresponding labor links by means of daily commuting ("pendulum migration") or by shifts lasting several days. This means that permanent settlements are not created on every part of a territory earmarked for production assimilation. As a result, questions of settlement in a TPK also include the choice of rational regimes for labor and leisure at production projects located at significant distances from settlements. The shortages of personnel in some occupations experienced in TPK's that are taking shape, for example, drillers, leads to a need to consider expedition and expedition-shift methods in opening up new territories, that is, to take interregional labor links into account [5].

The establishment of limits on the numerical strength of the population and manpower recruited for a TPK is, because of the limits of the TPK, of great importance for substantiating prospects for the formation and development of a TPK and the network of populated points on its territory. In a general case these limits should be determined as the result of consistent resolution of the tasks of the spatial organization of territorial systems at a level higher than the TPK, right up to the level of the entire country [1]. However, for the most important TPK's singled out for the main directions in the economic and social development of the USSR for the next decade or included in the comprehensive program of scientific and technical progress, taking into account their significance in solving national economic problems, it can be assumed that as the result of special measures implemented in the field of migration policy (the introduction of regional coefficients for wage rates and salaries-for-post and so forth) the demand for manpower will be fully satisfied, and no restrictions (limits) need be imposed on mechanical growth in population and manpower. However, a higher level of wages does not exclude the formation of initial migration flows, which results in a need to draw up and implement measures aimed at creating within the TPK a permanent population and stable labor collectives, first and foremost through improvements in living conditions and cultural and everyday services.

All this requires optimization of the main parameters in the formation of the settlement system in a TPK, along with a solution to questions concerning the location and development of its production projects. In the optimization process, the following must be determined in terms both of space and time: the numerical strength of the population and of manpower, the sector structure of those engaged in social production, a match in the sex structure of the work force and the requirements of production projects and services projects for male and female labor, the directions and forms of labor links, the production and cultural and everyday functions of the settlements, the links between them in terms of cultural and everyday services, and methods for establishing these links and the other characteristics of the settlement system.

Solutions found in the Institute of Economics OPP [expansion unknown, possibly Department of Industrial Establishments--ed] for a number of practical and experimental tasks in modeling the spatial organization of a TPK [1, 2] have made it possible to develop methodological approaches and tools for optimizing the interlinked development and location of production projects and services projects.

Under the conditions of the scientific and technical revolution the significance of the human factor is growing in the development of production, the interconnections between people's well-being and the quality of their work is being reinforced, and the orientation of the entire economy is being consistently based on improving the well-being and cultural level of the people. The development and location of production are being increasingly affected by ecological factors and the status of the network of populated places and its capacity to insure a specific level of comfort in living conditions, variety, and accessibility for the application of labor and to services facilities and recreational zones. Accordingly, when modeling the formation and development of the TPK, the population and the services sphere become independent subjects of research.

The TPK is represented as a set of subsystems (rayons, cities, industrial centers or other taxonomic entities), R . Territorial units not included in a given TPK but whose links with the TPK are considered in the model make up set R_1 . We also denote $R = R_0 \cup R_1$.

The numerical strength of the population x_r^t in subsystem r in period t is determined taking into account natural growth and the results of migration processes

$$x_r^t = (1 + \mu_r^t - \alpha_r) x_r^{t-1} - \sum_{s \in R \setminus \{r\}} v_{rs}^t + \sum_{s \in R \setminus \{r\}} \bar{v}_{rs}^t = 0, \quad r \in R_0, \quad t \in T, \quad (1)$$

where T is the set of the periods considered in the development of the TPK, $T = \{1, \dots, \bar{T}\}$; μ_r^t is the coefficient of natural population growth in subsystem r in period t ; α_r is the steady rate of departure of population in subsystem r beyond the boundaries of the TPK being studied, not depending on the level of development of the services sphere within the TPK or the requirements for manpower; v_{rs}^t is the number of inhabitants in subsystem s settling in subsystem r during period t ; and \bar{v}_{rs}^t is the number of inhabitants in subsystem r who during period t resettle in subsystem s because of the inadequate level of development in the services spheres or a contraction in the number of work places.

Within the limits of the individual subsystems of the TPK, normal conditions should be created for population and manpower reproduction. One of these conditions--the specific sex structure for the population--can be taken into account in the model if, in the type (1) equations we show not the total numerical strength of the population in each subsystem but the numerical strength of men and women, and introduce equations or inequalities reflecting the normal proportions between them. And this requirement can be expressed as the relationship between the sexes among those engaged in the economy of the TPK. The principle of harmoniously combining employment by sex is also of exceptional importance in and of itself. This is because the inventory of living facilities for families needed to match the level of consumption is the socioeconomic basis for population and manpower reproduction, and as a rule provision is made for work for not just one but both spouses [6, p 136]. The proportional availability of work places for both men and women is one of the economic prerequisites for the formation and functioning of families and the formation of a stable and normal population reproduction in the TPK.

When modeling the formation and development of a TPK all the elements of its economy, including the services sphere, making up set K are characterized by the requirements for male and female labor. Figures on the average sector ratios for the numerical strength of men and women do not always reflect with sufficient accuracy the structure of employment by sex at specific enterprises. One reason for this deviation may be that the content of the production processes at specific enterprises differs sharply from the situation typical of a sector [6, p 166]. Another reason is that the nature and conditions of labor at many work places do not create restrictions on replacements by either men or women. In the models, consideration of these factors, which essentially mitigate the requirements made of the sex structure of labor resources, is effected by introducing correlations that reflect the lower and upper limits for the use of male and female labor and the specific proportions of male and female labor resources within the total numerical strength of the population in each subsystem.

In regions of new economic development, during the period that the TPK is being formed, because of natural processes significant shifts occur the population's age structure, in particular in the proportion of the able-bodied population, which contracts 8-15 percent [7, p 86]. Migration processes also affect this population characteristic. Thus, among the migrants leaving a TPK for any given reasons, there is a predominance of people of able-bodied age [8, p 42]. The requirement for manpower in any given subsystem can be satisfied not only through its own able-bodied population but also in part through the organization of labor links between subsystems and by pendulum migration if the distance between them does not exceed the limits of spatiotemporal accessibility, and also by organizing multiple-day duty shifts or by using expedition and expedition-shift methods to open up new territories.

All these factors and methods for satisfying the manpower requirement are reflected in the balances of labor resources

$$\sum_{h \in K_r} \bar{a}_{mh}^i x_{h,i} + \sum_{i' < i} \bar{e}_{m,i'} \alpha_{r,i'}^{i'-1} + \\ + \sum_{i' < i} \sum_{r \in R_0} \bar{e}_{m,i'} \bar{v}_{r,i'} + \sum_{r \in R_r} \sum_{p \in P} \bar{w}_{m,p,r} - \sum_{r \in R_r} \sum_{p \in P} w_{m,p,r}^i - \gamma_{m,r}^i x_{r,i} \geq 0, \quad m \in M, \quad (2) \\ r \in R_0, \quad i \in T,$$

$$\sum_{h \in K_r} \bar{a}_{mh}^i x_{h,i} + \sum_{i' < i} \bar{e}_{m,i'} \alpha_{r,i'}^{i'-1} + \\ + \sum_{i' < i} \sum_{r \in R_0} \bar{e}_{m,i'} \bar{v}_{r,i'} + \sum_{r \in R_r} \sum_{p \in P} \bar{w}_{m,p,r} - \sum_{r \in R_r} \sum_{p \in P} w_{m,p,r}^i - \gamma_{m,r}^i x_{r,i} \leq 0, \quad (3) \\ m \in M, \quad r \in R_0, \quad i \in T.$$

Here, K_r is the subset of elements in the economy of the TPK (projects) located in subsystem r , $K_r \subseteq K$; m is the kind of labor resources by sex, $m \in M$, $M = \{1, 2\}$, $m = 1$ - men, $m = 2$ - women; P is the set of forms for the organization of labor links between subsystems (pendulum migration, multiple-day shifts, expedition and expedition-shift assimilation and so forth); a_{mk}^t and \bar{a}_{mk}^t are the minimum and maximum requirements for labor resources type m in order to insure the function of project k during period t (calculated per unit of intensity); x_{kr}^t is the intensity of function of project k in subsystem r in period t ; $\xi_{mr}^{t'}$ and $\bar{\xi}_{mr}^{t'}$ is deviation in the proportion of labor resources type m in the population leaving subsystem r in period t' and moving outside the limits of the TPK from its minimum and maximum value predicted for this period; $\bar{w}_{mrs}^t, w_{mrs}^t$ is the number of type m workers living in subsystem r and s who during period t commute to work in subsystem s or r in accordance with form p of the organization of labor links between subsystems; and y_{mr}^t and \bar{y}_{mr}^t are the minimum and maximum proportion of type m labor resources in the population of subsystem r predicted for period t .

Inequalities (2) and (3) are reinforced with extra conditions constraining the specific limits of labor links between the TPK being studied and other territorial socioeconomic systems (\bar{w}_{mrs}^t and w_{mrs}^t given $s \in R_d$) and pendulum migration within the complex.

Changes within the sector structure of the TPK's economy can lead to marked changes in the occupation-sector structure of requirements for manpower. For example, completion of the basic work to construct new production projects and create a services spheres leads to a sharp reduction in the requirement for construction personnel, assembly workers and workers in the construction structures and parts industry and an increase in the number of new work places at commissioned enterprises in other sectors; which gives rise to the problem of utilizing the freed-up part of workers and the need to provide personnel for the new enterprises. The unavailability of vacant work places that would correspond to the occupations and skill levels of workers "displaces" this requirement from the point where it is. This may be opposed by the reluctance of workers to leave a familiar place, which is supported by the availability of free work places at the new enterprises for other occupations that are often similar, and also by the opportunities for occupational retraining, for example on courses or in a training combine. However, within period t a definite part d^h of freed-up workers in sector h will prefer a change of residence to a change of occupation. If \bar{y}_{kr}^t is the decrease in the intensity of function of project k in subsystem r within period t , and a_k^t is the number of workers needed per unit of intensity of function in this project during the same period, then the total number of workers leaving subsystem r within time period t because of the decrease in the number of work places in it is w_r^t

$$\sum_{k \in K_r^h} d^h a_k^t \bar{y}_{kr}^t - w_r^t = 0, \quad r \in R_d, \quad t \in T, \quad (4)$$

where K_r^h is the subset of economic projects in subsystem r relative to sector h , $k_r^h \in K$, $h \in H$; and H is the set of sectors and kinds of activity making up the economy of the TPK.

The services sphere for the TPK population is represented by two groups of objects, namely local and intersettlement (general-complex). Objects of local significance include the housing inventory and services establishments and enterprises in everyday and periodic use; they are located in each subsystem and provide consumer services at places of residence. Intersettlement objects--theaters, circuses, museums, specialized hospitals and clinics, mail-order trade bases, specialized stores and other establishments and enterprises in episodic use located in one of the groups of populated points--can serve the inhabitants of this entire group of settlements. It is also possible to locate intersettlement services objects of the same kind at two or more populated points, and in some cases, even in each populated point. A specific list of intersettlement services objects is drawn up for each TPK taking into account natural and climatic conditions, the distances between settlements, the national features of the population's culture and everyday life, and the specific features relating to the location and organization of work at each kind of services establishments and enterprises. Accordingly, aggregating the elements of the intersettlement services sphere should be done very carefully.

Specific costs for the construction and operation of cities increase in line with the increase in their size [9, 10]. However, given equivalent collections of services sphere objects, per capita specific costs involved for cities of different sizes vary by no more than 1-2 percent [11]. Distinguishing the intersettlement services objects in a complex creates a basis for the allocation of expenditures in this sphere by cities of different sizes, according to the functions they fulfill.

The statuses of the services sphere elements distinguished for each of the subsystems in a TPK are determined by special equations that make it possible to establish an order x_{kr}^t for the size of growth y_{kr}^t or decrease \bar{y}_{kr}^t during period t for the intensity of function of object k within subsystem r and, in appropriate cases, the parts that are temporarily not in use. Here, variables y_{kr}^t and \bar{y}_{kr}^t can be made sufficiently detailed to reflect not only the construction of new objects and the complete or partial liquidation of objects built earlier, but also the possibility that they will be transformed (converted) and relocated [12]. The constraints imposed on the use of output, resources and services of various kinds ($i \in I$) during the modeling, creation, functioning and development of the economic elements of the TPK, including the constraints on housing and cultural and everyday construction [12] can prevent achievement of the intended level in providing the population with housing and services establishments and enterprises. An inadequate level in the development of the consumer services sphere is often caused not only by temporary constraints but also by internal-complex reasons, such as the slow development of capacities in the construction base and so forth. Accordingly, when modeling the spatial organization of the TPK the assumption is made that it is possible for shortages to occur in the number of services sphere objects

$$a_{ir}'x_r^t - \sum_{k \in K_i \cap K_r} b_{ik}'x_k^t - \varphi_{ir}' \leq 0, \quad i \in I_1, \quad r \in R_0, \quad t \in T, \quad (5)$$

$$a_{ir}'x_r^t - \sum_{k \in K_i \cap K_r} b_{ik}'x_k^t - \sum_{i \in I_2} z_{ir}^t + \sum_{i \in I_3} \bar{z}_{ir}^t - \varphi_{ir}' \leq 0, \quad i \in I_1, \quad r \in R_0, \quad t \in T, \quad (6)$$

where \bar{I}_l is the subset of services offered by the complex of local services objects $\bar{I}_l \subset I$; I_l is the subset of services offered by the intersettlement services objects $I_l \subset I$; K_i is the subset of elements in the economy of the TPK producing or providing type 1 services, $K_i \subset K$; $\alpha_{i,r}^t$ is the norm for support offered to the population of subsystem r in period t for type 1 services; $b_{i,k,r}^t$ is the quantity of type 1 products or services insured during period t by one unit of intensity in the function of object k in subsystem r ; $\varphi_{i,r}^t$ is the magnitude of shortage of type 1 services in subsystem r in period t ; $z_{i,s,r}^t$ and $\bar{z}_{i,s}^t$ are the volume of type 1 services provided in period t by services objects located in subsystems s and r for the populations of subsystems r and s .

Variables $z_{i,s,r}^t$ and $\bar{z}_{i,s}^t$ can be made detailed enough to distinguish trips made by the population to service objects and the forms in which out-of-town services are provided.

An inadequate level of development in the services sphere is one of the reasons for population outflow from a TPK. Therefore, even in labor-deficient subsystems of the complex an outflow of population, and hence of manpower, is possible.

$$\delta_r^t y_r^t - \sum_{\varphi \in \Omega_t} \varphi_{i,r}^t \geq 0, \quad r \in R_0, \quad t \in T, \quad (7)$$

where δ_r^t is the magnitude of the services shortage in subsystem r resulting in one unit of intensity of population outflow in period t (corrected for the level of development in the services spheres in cities and regions that are more attractive to migrants); and y_r^t is the number of inhabitants in subsystem r leaving the subsystem in period t because of the inadequate level of development in the services sphere. Type (7) conditions may also be formed taking into account the differences in the effect of the shortage of individual kinds of services on population outflow.

The dimensions of $\bar{v}_{r,s}^t$ for population outflow from a given subsystem resulting from the inadequate level of development in the services sphere and a contraction in the number of work places into other parts of the complex and beyond are determined by equations of the type

$$\sum_{s \in R_0} \bar{v}_{r,s}^t - \frac{1}{\gamma_r^t} w_r^t - y_r^t = 0, \quad r \in R_0, \quad t \in T, \quad (8)$$

where γ_r^t is the proportion of all manpower resources within the numerical strength of the population in subsystem r in period t .

If y_r^t people leave subsystem r because of the inadequate level of development in the services sphere, then, since they are aware of the reasons for this outflow, the inhabitants of other subsystems in the complex will prefer not to resettle there without sufficiently weighty cause. Therefore, in all periods except the first period, the dimensions $v_{r,s}^t$, $s \in R_0 \setminus \{r\}$, $r \in R_0$, for resettlement into subsystem r by inhabitants in other subsystems of the complex will be limited

$$\sum_{s \in R_0 \setminus \{r\}} v_{r,s}^t - \frac{1}{\gamma_r^t} w_r^t - \alpha_r^t z_r^{t-1} \leq 0, \quad r \in R_0, \quad t \in T \setminus \{1\}. \quad (9)$$

One of the most important questions in determining the prospects for development in the resettlement system within a TPK is establishing the sizes of building development zones in each subsystem. On the one hand it is necessary to insure the rational, economical use of land resources, especially land suitable for agricultural production. On the other, the increasing rates of social progress and the probable nature of changes in the population's requirements require the creation of appropriate reserves of territory not only for the development of each settlement overall but also within settlements and within all their production parts--residential regions, microrayons and quarters. Therefore, it is advisable always to determine the requirements for building development territory not according to current (for example, "for first phase") but to long-term ("for the calculated period") norms [13].

The magnitudes ω_r^t of parts distinguished during period t for housing and cultural and everyday construction in subsystem r are calculated on the basis of the long-term norms for requirements in a territory: ρ_r for the development of a complex of local services objects per 1,000 growth in population, and ρ_{kr} for the construction of intersettlement cultural and everyday objects, established per unit of growth in intensity of function. Since it is theoretically impossible to exclude the possibility of contraction of the numerical strength of the population in isolated periods ($x_r^t < x_r^{t-1}$) and contraction of the magnitudes of activities in certain subsystems in terms of intersettlement services ($y_{kr}^t > 0$), it is necessary also to assume a corresponding free-up of part $\bar{\omega}_r^t$ of the building territory in subsystem r in period t . Therefore,

$$\begin{aligned} \omega_r^t - \bar{\omega}_r^t &\geq \rho_r x_r^t - \rho_r x_r^{t-1} + \\ &+ \sum_{\substack{k \in K_2 \\ t \in I_{2,1}}} \rho_{kr} y_{kr}^t - \sum_{\substack{k \in K_2 \\ t \in I_{2,1}}} \rho_{kr} \bar{y}_{kr}^t, \quad r \in R_0, \quad t \in T, \end{aligned} \quad (10)$$

where $I_{2,1}$ is the subset of services offered for intersettlement recreation zones, $I_{2,1} \subset I_2$.

Temporary use of reserves of territory within a building zone can be insured through appropriate architectural-and-planning decisions that provide for the creation of additional microrayon gardens, play areas, sports areas and so forth.

Assuming the possibility that a shortage will occur for individual types of services, it is essential to make provision to eliminate such shortage in the future in the appropriate reserves of building territory. Whereas for local services objects these reserves are included in magnitude ρ_r , for the intersettlement services they must be considered separately. Therefore, for these intersettlement services taken as part of the periods considered, the following condition is introduced

$$\begin{aligned} \rho_r x_r^t + \sum_{\substack{k \in K_2 \\ t \in I_{2,1}}} \rho_{kr} x_{kr}^t + \sum_{\substack{k \in K_2 \\ t \in I_{2,1}}} \left(1 + \frac{\xi^t}{\gamma^t}\right) \rho_{kr} y_{kr}^t - \sum_{t \in T} \omega_r^t + \\ + \sum_{t \in T} \bar{\omega}_r^t < A_r^0, \quad r \in R_0, \end{aligned} \quad (11)$$

where ρ_{ir} is the long-term norm for requirements for building territory in subsystem r calculated per unit of type i services; $\xi_{ir}^{\tilde{T}}$ is the proportion of services sphere workers predicted for period \tilde{T} within the total numerical strength of the population; $\gamma_{ir}^{\tilde{T}}$ is the proportion of all manpower predicted for period \tilde{T} within the total numerical strength of the population; and A_r^0 is the magnitude of building territory in subsystem r before the start of the first period.

The magnitudes $A_r^{\tilde{T}}$ for building territory in each subsystem of the TPK at the end of the last period is determined as

$$A_r^{\tilde{T}} = A_r^0 + \sum_{t \in T} \omega_r^t - \sum_{t \in T} \bar{\omega}_r^t, \quad r \in R_0.$$

They are sufficient to liquidate any future shortage of services sphere objects for the TPK overall but they do not take into the effective location of intersettlement services objects that should be created after period \tilde{T} in order to liquidate shortage $\varphi_{ir}^t, i \in I \setminus I_{2,1}$. However, modeling the formation and development of the TPK is not a one-time operation. The program for the formation and development of a TPK should be refined at least every 5 years as the planning horizon shifts. Besides introducing the necessary refinements resulting from the course of the formation of the TPK this also makes it possible to review questions concerning the location of intersettlement services sphere establishments and enterprises during period $\tilde{T} + 1$ and thus establish efficient ways to liquidate shortages, and also to make more exact the sizes of building territories in each subsystem.

Variables ω_r^t and $\bar{\omega}_r^t$ are components of the overall balances for the use of territory (land balances) in each subsystem, including land used for production construction and for agriculture [1, 2]. This insures coordination between the resettlement system and the location and development of production and, in part, land usage. Questions concerning the use of water resources are similarly resolved. Of course, here, differences in requirements for the quality of water for domestic and drinking purposes and for production supply are taken into account [12].

The purposeful function of a model for the formation and development of a TPK lies in reducing to a minimum the aggregate discounted construction and exploitation costs to insure given volumes of output produced by special-purpose objects given comparable sets of other production facilities (regardless of whether or not they are located on the territory of the complex or outside it) and the same level of support for the population in terms of housing and other services sphere objects [1]. Comparability of the variants in the formation and development of the TPK according to the level at which its population is provided with services sphere objects is achieved as follows: a determination is made of increases κ_i^t or decreases $\bar{\kappa}_i^t$ in shortages of type i services in period t from construction and exploitation costs

$$\sum_{r \in R_0} (c_{ir}^t + e_{ir}^t) \varphi_{ir}^t - \sum_{r \in R_0} (c_{ir}^{t-1} + e_{ir}^{t-1}) \varphi_{ir}^{t-1} - \kappa_i^t + \bar{\kappa}_i^t = 0, \quad i \in I_1 \cup I_2, \quad t \in T, \quad (12)$$

where C_{ir}^t is specific capital investments for growth in period t in subsystem r per unit of volume of type i services offered; e_{ir}^t is operating costs during period t to insure one unit of type i services in subsystem r in period t ; and K_{ir}^t and \bar{K}_{ir}^t , commensurable in terms of the significance of individual kinds of services for the population in, and between themselves with the aid of coefficient g_{ir}^t , are included in the purpose function, that is, the sum of discounted expenditures for the construction and operation of the entire complex of objects in the economy of the TPK and the organization of economic, labor, and cultural and everyday links are supplemented by the magnitude

$$\sum_{t \in T} \sum_{i \in I, U \in U_i} g_{ir}^t x_{ir}^t - \sum_{t \in T} \sum_{i \in I, U \in U_i} g_{ir}^t \bar{x}_{ir}^t.$$

Another approach is also possible to the building of the purpose function in a model for optimizing the main parameters in the formation and development of a TPK. It consists in the following: the limits on resources for capital construction are established for the overall economy of the TPK without distinguishing sectors or kinds of activities, while increases and decreases in shortages of individual kinds of services are evaluated from the capital investments per unit. In this case the purpose function is the sum of increases in shortages of services, commensurable in terms of their significance in time and between themselves, during the course of the entire prospective period considered [12]. Given the limited overall sizes of resources allocated for the formation and development of a TPK and the strict tasks in terms of production volumes (deliveries made outside the confines of the complex) achieved by its special projects, the minimum for this special function can be insured only given efficient organization of production and the services sphere within the complex. Thus, solving this task also aims at enhancing efficiency in the utilization of resources allocated for development of the production sphere in a TPK, while production results create the basis for determining the optimal sector structure for capital investments in the economy of the complex.

Equations (1) through (12) make up only part of the model for the formation and development of a TPK. Of course, the complete model includes equations for the status of production and services sphere objects, the balances of production and consumption and construction-and-assembly work and production services, conditions for fulfillment of tasks involving the delivery of output outside the confines of the TPK being studied, constraints on the utilization of resources and on their movement to other regions of the country, constraints on the intensity of links with other territorial socioeconomic systems in terms of mutual provision of services (including intersettlement services sphere objects), conditions for the formation of the transportation network, constraints on the scales of use of natural resources, conditions for environmental protection, fixing the initial status of elements within the TPK, and conditions for nonnegativity of variables and enumerability of some of them, and so forth. It is thought that the part of the model shown will provide an adequate idea about modeling resettlement in a TPK.

The results from solving the problems in optimizing the formation and development of a TPK serve as a basis for the development of schemes and projects for regional planning on the territory covered by the TPK, including planning to substantiate the spatiotemporal organization of production and the services sphere, functional zoning, the efficient utilization of natural resources and manpower, environmental protection and so forth.

The results directly characterizing resettlement on the territory of a TPK are the following: the dynamics of population strength for rayons, cities, industrial centers and other spatial subsystems distinguished; the sizes of building development territories in each subsystem; the dynamics of the strength and spatial and sex structure of the labor force, and also shifts in the manpower sector structure; the location, development scales and zones of activity by intersettlement services sphere objects during periods of the TPK's development; the development of intersettlement (between the subsystems distinguished) labor and cultural and everyday links and the forms for the organization of these links; dynamics in the development of the complex of local services sphere objects at the territorial level; the level at which the population in each subsystem is provided with individual kinds of services, and the dynamics of this level; the development of economic and cultural and everyday functions in individual subsystems; the directions and intensity of migration flows in individual periods; and so forth. Achieving agreement between all parameters in the development of the TPK is insured by algorithms for solving general tasks in linear programming.

This approach was developed at the Institute of Economics OPP during the postulation and solving of problems in optimizing the formation and development of the Central Ob and South Yakut TPK's and during the course of experimental calculations to optimize the production and spatial structure of the Sayanskiy TPK. The data base for the solution was the normativ and statistical data and the results of sociological studies and scientific and planning work. Urban development normativs [13] served as the basis for determining indicators for providing the population with services sphere objects and the corresponding indicators for the numerical strength of the population served or other gauges of the capacities of these objects, the requirements for manpower to operate them, the proportions of manpower and workers in the services sphere as part of the total numerical strength of the population, and the requirements for the creation of services sphere objects in the territory.

Input data for determining the coefficients characterizing various aspects of and factors in population movement and the movement of manpower are statistical data and the results from sociological studies conducted by the Institute of Economics OPP [8, 14-21]. After processing of this information, coefficients were derived for natural population growth and stability in the intensity of population departure, the proportion of manpower resources within the numerical strength of the population with differentiation by sex and deviation from these proportions, the proportion of freed-up workers who will prefer a change of residence to a change of occupation, and the magnitude of shortage for services sphere objects causing one unit of intensity in the outflow of the population. Baseline values for these magnitudes of shortage were calculated as the relationship of differences between the magnitudes of the shortage of services sphere objects in regions of outflow and inflow and the differences in the corresponding coefficients for population outflow.

Statistical data and planning work done at sector institutes together with material from the comprehensive program for scientific and technical progress were used to determine the indicators characterizing the elements in the economy of the TPK: the capacities of objects, their requirements for raw materials, materials, energy and manpower, the proportional capital investments and operating costs and so forth.

As a rule the planning horizon was taken as 20 years, distinguishing four five-year periods. Sufficiently reliable results can be obtained only for the first two of these periods, while figures for the third and fourth periods make it possible to reveal long-term trends in the development of the elements of the complex. Practical work in solving optimization tasks for the spatial organization of territorial socioeconomic systems shows the need to include another two five-year periods: a zero period, which precedes the first period and covers the current five-year plan; and a fifth period which follows on after the fourth period and extends beyond the planning horizon. Including the zero period makes it possible to evaluate the realistic nature of input data and when required, to make appropriate corrections. The fifth period is introduced in order to extend the influence "of the effect of the end of the planning horizon" on the more remote prospects and to reveal the duration of the effect of isolated factors and conditions on the dynamics of system development. In addition, as already noted above, ways for development of the complex should be made more exact each 5 years, with a corresponding shift in the planning horizon. Here, all input data, including coefficients whose stability is relatively short-lived, are amended.

Work on modeling the formation and development of new TPK's is preceded by studies, including field-work studies, of the population and the status of the economies on corresponding territories and of the natural resources that they have at their disposal, and possible ways to use them. Accordingly, before work is started those formulating the task already have at their disposal certain information, supplemented by verified data from tasks done for other complexes, taking into account, naturally, the specific features of the region. Thus, information from and experience gained in solving the task for the Central Ob complex were used for the South Yakut Complex model.

In modeling the formation and development of the Central Ob TPK [22, pp 312-316] it was established that efficiency in the utilization of funds to create this complex, which specializes mainly in oil recovery and primary gas processing, can be considerably improved by rational spatial organization of the construction industry and a number of other production facilities, and also the services sphere. The organization in the region of Tyumen of a rear support base for construction and the operation of the Central Ob TPK is making it possible to reduce the requirement for capital investments to develop the construction industry and train its workers by R110,000-120,000 for each R1 million of growth in the volumes of construction and assembly work carried out on the territory of the central Ob region. It is also advisable to include in the composition of the rear support base enterprises for the capital repair of machines and equipment. Despite the fact that the creation of enterprises in the central Ob region to produce special clothing, knitted underwear and so forth is increasing capital investments by a factor of 1.5 and prime costs by 10-15 percent compared with locating them in Tyumen, it is expedient to locate them right there in the central Ob region so as to provide employment for women.

With regard to satisfying the central Ob region's population's requirements for services provided by the intersettlement objects, it is preferable to organize out-of-town services from Tyumen and, in part, from Omsk, and this is already being done. Further development of the services sphere is associated

with expansion of its activities in terms both of territory and kinds of services, and the development of the material-technical base and the creation of interest on the part of the appropriate establishments in providing timely and high-quality out-of-town cultural and everyday services. The consumer services sphere in the industrial centers of the central Ob region (the Surgut, Nizhnevartovsk and South Balyksa areas) should include only objects in daily and periodic use.

Raising the level of consumer services in the central Ob region will promote the formation of permanent staffs in all sectors of the economic complex. In this connection, the proportion of services sphere personnel (not counting those working at inter-settlement cultural and everyday services establishments) is growing within the total numerical strength of the Central Ob TPK's population.

The calculations have shown the effectiveness of organizing multiple-day duty shifts. Thus, when the commuting distance for drilling operations personnel is 100 or more kilometers, multiple-day duty shifts insure cuts by a factor of more than 5 in losses of time spent traveling. Here, complexes of mobile housing and cultural and everyday facilities with a high level of technical equipment are the most efficient for the shift settlements. The larger capital investments (calculated per worker) needed to create mobile shift settlements are recouped through the savings made on the expenses involved, first and foremost in equipping construction-and-assembly organizations and the shipment of construction structures and parts. Moreover, considerably less time and labor is required to construct the mobile shift settlements than to construct permanent buildings and installations. Extensive uses for mobile shift settlements should be found in the development and exploitation of deposits in the Nizhnevartovsk oil region, and also in the northern part of the Surgut industrial center and at some other deposits.

Within the task of optimizing the formation of the South Yakut TPK [14, pp 331-335] a review was also made of questions concerning the organization of construction and working of major projects such as the coal deposits, an enriching factory and the GRES in the Neryungri and Seligdar Mining-and-Enriching Combine, and also of the possibility of developing the Chulman and Denisov coking coal deposits and utilizing the Tayezhnyy and other iron ore deposits, including a check on the expediency of setting up metallurgical production in South Yakutiya and the development of other sectors of the mining industry. At the same time a search is underway for the most efficient spatial organization of the resettlement system and the construction industry at the focus of development on the territory of this complex, which is characterized by severe natural and climatic conditions.

Analysis of the results gained from the solution has shown that the spatial organization of the construction industry is significantly affecting population settlement in South Yakutiya and the dynamics of its numerical strength. In order to fulfill the construction program in each industrial center (the Neryungri, Chulman, Tayezhnyy, Aldan, and Tommot centers) it is necessary for a construction base to be formed for each of them, and, even with the growing volumes of construction, the number of workers is being consistently reduced through improvements in labor productivity. However, the dynamics in the numbers of workers at individual industrial centers is largely unequal and will depend

on the spread of requirements for construction-and-assembly work by period, and also on the intercenter links in terms of their fulfillment and provision with construction structures and parts. Here, in some cases it is expedient to have reserve capacities and to reallocate them from one center to another. All this makes it possible to avoid sharp fluctuations in the dynamics of the numerical strength of the population in all the industrial centers.

The timely construction of housing and cultural and everyday projects on the necessary scales will be of great significance for the successful realization of the program to develop the South Yakut TPK and form a permanent population on its territory. Here it is possible to achieve some saving on construction and assembly costs by organizing links for intersettlement cultural and everyday services (in some of the objects in periodic use) between Chulman and Neryungri. In the other industrial centers the services sphere should cover the full range of cultural and everyday objects, including objects in periodic use.

The expediency and effectiveness of resolving questions on the location and development of production in the TPK jointly with clarification of the main parameters of its resettlement system have also been confirmed by experimental calculations to optimize the production and spatial structure of the Sayansk TPK.

The approach described to the modeling of resettlement in the TPK makes it possible to link together the development and location of production, population, services sphere and the utilization of natural resources, and to reflect not only the effect of industry and agriculture on the formation of the resettlement system but also the influence of the latter on the development and location of production within the confines of the TPK.

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